



DRAFT
Environmental Assessment and
Finding of No Significant Impact

Range Expansion Projects
Donnelly Training Area, Alaska

February 2003

**ENVIRONMENTAL ASSESSMENT
for
Range Expansion Projects
Donnelly Training Area, Alaska**

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ENVIRONMENTAL ASSESSMENT

for

Range Expansion Projects

Donnelly Training Area, Alaska

1.0 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

U.S. Army Alaska (USARAK) is proposing to construct a Combined Arms Collective Training Facility, a Battle Area Complex, and a Collective Training Range at Donnelly Training Area, Alaska to maintain its capability to conduct its military mission to meet evolving Army training standards. This section presents the purpose and need for the Proposed Action; defines the scope of the environmental analysis and issues to be considered; identifies decisions to be made; and identifies other relevant documents and actions.

1.2 Purpose and Need for Action

The purpose of the Proposed Action is to construct facilities that meet requirements for implementation of the USARAK military mission at Donnelly Training Area. Failure to construct these facilities would result in a failure of USARAK and other Alaska military units to obtain cost-effective training required to support their critical combat roles. This would affect USARAK units' military readiness and availability for deployment to meet threats to U.S. security. Projects would support proposed implementation of a Stryker Brigade Combat Team within USARAK (an ongoing, separate NEPA document), but proposed ranges are mission-essential projects for the Legacy (existing) force, the 172nd Infantry Brigade (Separate), as certified by U.S. Army Pacific.

Combined Arms Collective Training Facility

USARAK does not have facilities to provide USARAK and other unit leaders and/or commanders with a combined arms collective training scenario to evaluate unit urban operations proficiency under simulated combat conditions. Trainings requirement are not being met. Expansion of the Military Operations in Urban Terrain (MOUT) facility at Fort Wainwright is not viable due to land and site constraints.

Battle Area Complex

USARAK does not provide tenant and visiting units with a standardized range on which to conduct company or greater-sized unit live firing. Units stationed in Alaska have no experience on a large, complex range. The current system for training requires excessive personnel time (for both Range Control and training units) to establish larger unit training scenarios and their associated equipment. Training requirements are not being met.

Collective Training Range

Unit training (collective) requirements are not being achieved at Donnelly Training Area for USARAK troops. The Proposed Battle Area Complex will largely fulfill collective live-fire training requirements, but this range is not planned for completion until late 2005, and funding could slip to even later years. A Collective Training Range would meet many unfilled training requirements for USARAK troops in the interim. The Collective Training Range would be relatively unsophisticated in terms of electronic

operation and have significantly less targetry, but such a range could be constructed for a relatively modest cost in a short time. The Collective Training Range would be removed and the area restored when it is no longer needed.

1.3 Scope of Environmental Analysis

This environmental assessment involves three range projects (Combined Arms Collective Training Facility, Battle Area Complex, and Collective Training Range) within Donnelly Training Area. The environmental assessment considers direct, indirect, and cumulative effects of the Proposed Action and alternatives, including the No Action Alternative. It was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 [42 USC 4321 *et seq.*], Council on Environmental Quality Regulations [40 CFR Parts 1500-1508], and Army Regulation 200-2, *Effects of Army Actions* [32 CFR Part 651]. A specific requirement for this environmental assessment is an appraisal of impacts of the three proposed range expansion projects, including a determination of whether or not a Finding of No Significant Impact is appropriate or whether a Notice of Intent to prepare an Environmental Impact Statement is required.

1.3.1 Scoping and Issues Analysis

NEPA defines scoping as “*an early and open process for determining the scope of issues to be addressed and for identifying significant issues related to the proposed action*” (40 CFR 1501.7). These issues are used to develop alternative actions, including mitigation measures, and to evaluate the environmental consequences of proposed actions. A USARAK interdisciplinary team (primarily personnel identified in Section 5, *Persons Contacted - Army*, has discussed issues and concerns regarding these projects. Internal and external review of this environmental assessment, including making it available to the general public, will complete scoping.

1.3.2 Issues Not Addressed or Not Considered to be Potentially Significant

Initial scoping resulted in the elimination of some potential issues. Brief discussions of the rationale for these decisions are below.

Environmental Justice

Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* [59 Federal Regulation No. 32], issued in February 1994, provides that “*each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations*”. The Proposed Action and its alternatives would be confined to Donnelly Training Area, and construction acquisition actions would comply with federal acquisition regulations. Neither the Proposed Action nor its alternatives would have significant or disproportionate adverse effects on minority or low-income populations.

Environmental Health and Safety Risks for Children

Executive Order No. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, [62 Federal Regulation No. 78] was issued in April 1997. This Executive Order directs each federal agency to “*ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks*”. Sensitive areas for exposure to children are schools and family housing areas. Environmental health and safety risks are attributable to products that a child might come in contact with or ingest as well as safety around construction areas and areas of buildings that pose safety hazards. Proposed projects are within training range areas of Donnelly Training Area. There are no schools or family housing areas on Donnelly Training Area, and

these projects are many miles from such areas off-post. Construction and operation of these projects would comply with federal safety standards. Neither the Proposed Action nor its alternatives would have significant or disproportionate adverse effects on children or pose health or safety risks.

Geology

Neither the Proposed Action nor its alternatives would have any effects on geologic resources.

1.4 Decisions to Be Made

The decision to be made is whether to implement the Proposed Action, modify the Proposed Action, or select an alternative action, including the No Action Alternative. The Commander, USARAK will make this decision.

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

This section describes the Proposed Action (construction of three range expansion projects), alternatives considered in this assessment, and alternatives that were eliminated from detailed consideration.

2.1 Location and General Conditions

Donnelly Training Area is located in central Alaska (Figure 2.1a), within the Tanana River valley and hill area, bordered by the Brooks Mountain Range to the north and the Alaska Range to the south (Anonymous 1995a). Donnelly Training Area is located about 110 road miles southeast of Fairbanks and six road miles south of the junction of the Alaska and Richardson highways. Donnelly Training Area consists of two large training areas, Donnelly West Training Area (approximately 531,000 acres) and Donnelly East Training Area (approximately 93,000 acres), and three outlying sites, Gerstle River Training Area (20,580 acres), Black Rapids Training Site (4,112 acres), and Whistler Creek Rock Climbing Area (542 acres) (Natural Resources Branch 2001).

The proposed Combined Arms Collective Training Facility (CACTF) and Battle Area Complex (BAX) would be located within Donnelly East Training Area (Figure 2.1b). The proposed Collective Training Range (CTR) would be located within Donnelly West Training Area (Figure 2.1c). The Proposed Action includes possible changes in range orientation and/or location within the general Eddy Drop Zone Study Area (CACTF and BAX) and the general North Texas Study Area (CTR) to minimize or avoid environmental impacts or better situate the ranges for military training purposes. There is no reason to suspect that such changes would significantly change the analyses of environmental consequences, and such changes could reduce environmental impacts.

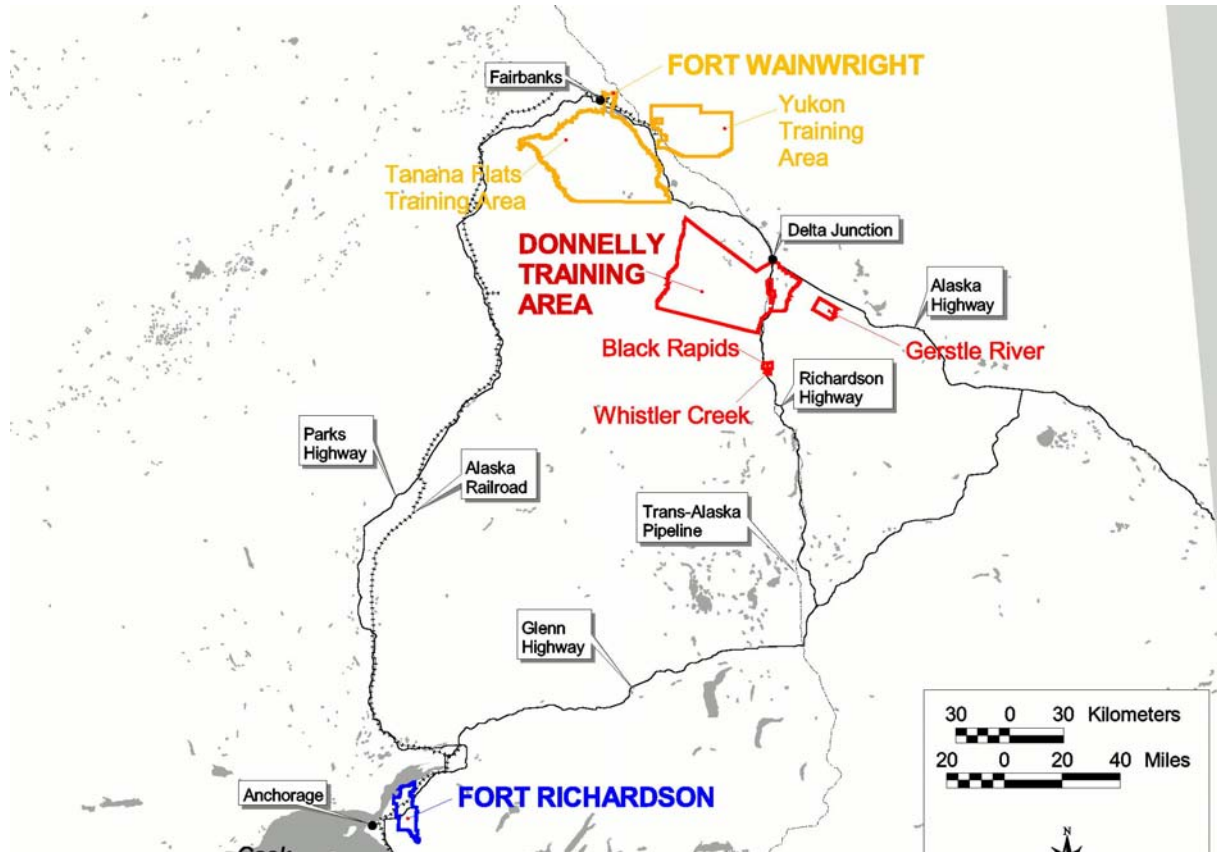
Donnelly Training Area has the northern continental climate of interior Alaska, which is characterized by short, moderate summers; long, cold winters; and low precipitation and humidity. Average monthly temperatures range from -6.4° Fahrenheit (F) in January to 60.0°F in July, with an average annual temperature of 27.4°F. Prevailing winds are from the east-southeast from September through March and from the west, southwest, or south from April through August. Average wind velocity is 8.2 miles per hour. Greatest wind speeds occur during winter. Thunderstorms are infrequent and occur only during summer. Average annual precipitation is 11.12 inches, which falls over 90.4 days, mostly during summer and early fall. Average monthly precipitation ranges from a low of 0.24 inches in April to a high of 2.38 inches in June. Average annual snowfall is 40.5 inches, with a record 99.7 inches in 1945. Heavy fog is relatively common during December and January (Natural Resources Branch 2001). Ice fog can be expected any time that temperatures drop to -30°F or lower, but ordinarily ice fog will only occur in areas near human settlements (Anonymous 1979).

2.2 Description of Proposed Action – Construction/Upgrades of Three Ranges

Combined Arms Collective Training Facility (Project No. 56693)

USARAK proposes to construct a 24-structure CACTF to bring USARAK urban combat training facilities up to current Army standards. The facility would

Figure 2.1a. Location of Donnelly Training Area, Alaska



include a Military Operations in Urban Terrain (MOUT) Range Support facility, control tower, ammo breakdown facility, electric service, Arctic latrines, site improvements, and data information systems. The range would use non-live-fire ammunition (e.g., blank small arms, wax bullets, other short-range training ammunition). The range would be laid out within a 1,500 x 1,500 meter configuration.

The CACTF would be sited within the Eddy Drop Zone Study Area, to the east of Jarvis Creek and north of Eddy Drop Zone. The range is scheduled for completion by September 2007.

Battle Area Complex (Project No. 53401)

USARAK proposes to construct a live-fire, Battle Area Complex (BAX) designed for gunnery training and qualification requirements of crew-served, vehicle-mounted weapon systems. This range would also support up to a dismounted infantry company tactical live-fire operations either independently of, or simultaneous with, supporting vehicles. Both mounted and dismounted portions of the range would be side-by-side on a total Battle Area Complex, which would be approximately 3,000 meters wide and 4,000 meters long, not counting the impact area. Units would acquire skills needed to detect, identify, engage and defeat stationary and moving targets in a tactical array.

Figure 2.1b. Location and Hydrology of Proposed BAX/CACTF Ranges at Donnelly Training Area, Alaska

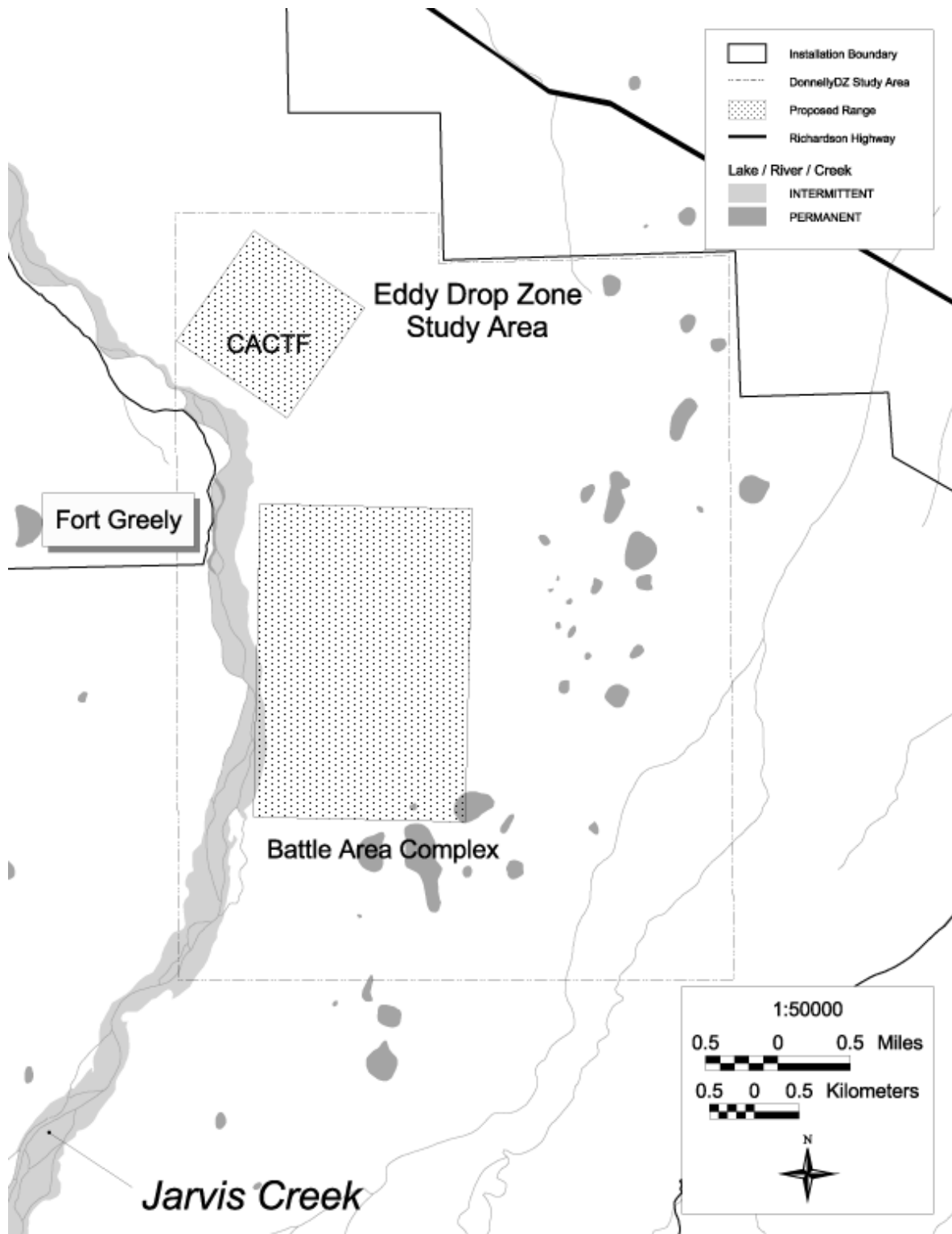
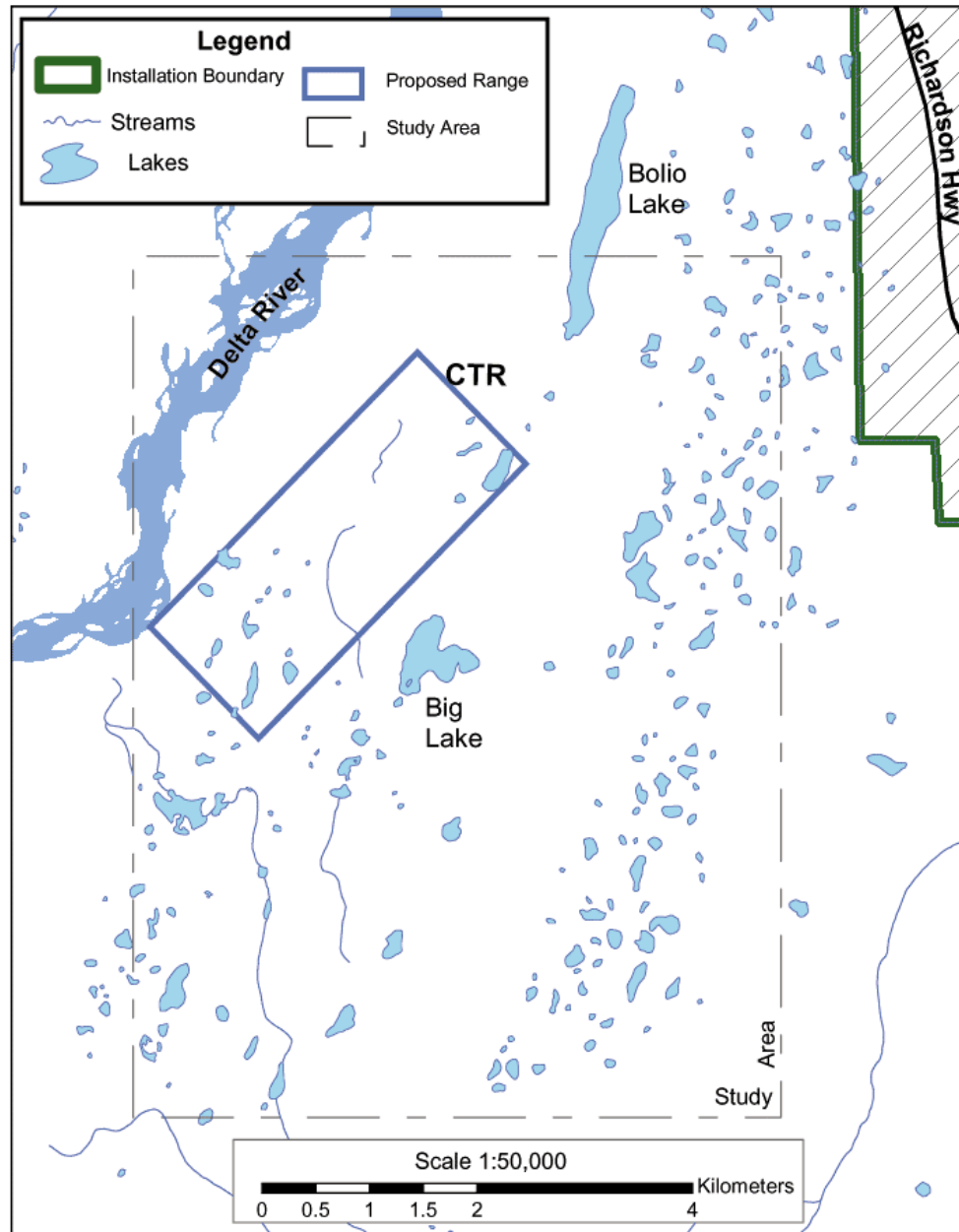


Figure 2.1c. Location and Hydrology of Proposed Collective Training Range at Donnelly Training Area, Alaska



The mounted weapons portion of the BAX would normally support weapons up to the 105 mm cannon using inert warheads. The range could also be used for sub-caliber and/or laser training.

Munitions fired from this range would be non-dudged types (*e.g.*, inert high explosive anti-tank, inert high explosive plastic). Close air support could also be incorporated to add training realism using dry (no live-fire) runs over the BAX. Service rounds could be fired into existing impact areas west of the Delta River. When using high explosive service ammunition, units would be west of the transAlaska pipeline and would fire into established dudged impact areas. Weapons fired on the dismounted side of the BAX would use small arms ammunition (*e.g.*, 9 mm tracer [AT4 subcaliber], 5.56 mm [M-16], 7.62 mm [M-60 machine gun], 40 mm training practice round - orange powder [(M-203)]).

Primary features of the BAX include course roads with crossover capability, stationary armor targets, moving armor targets, stationary infantry targets, moving infantry targets, machine gun bunkers, and breaching obstacles. All targets would be fully automated, and the event-specific target scenario would be computer-driven and scored from the control facility. The range operating system would be fully capable of providing instrumented after-action reviews. In addition to the range, the BAX would include an after-action review facility, ammo breakdown building, ammo loading dock, operations/storage building, Arctic latrines, bleacher enclosure, bivouac and unit staging area, covered mess area, building information systems, electric service, water and a septic system, storm drainage, and site improvements. The CACTF and BAX would share support facilities and reduce the overall footprint of support facilities into one compound where feasible.

The BAX would be sited just south of Buffalo Drop Zone within the Eddy Drop Zone Study Area, to the east of Jarvis Creek. The facility is scheduled for completion by September 2005.

Collective Training Range

USARAK proposes to construct a live-fire complex to support collective training needs at Donnelly Training Area. A primary use of the CTR would be to accomplish some of the training that will be done on the BAX while it is being constructed. Thus, the range will have a footprint similar to that described for the BAX, above. However, there would be far fewer and less sophisticated targets; targets would not be electronically controlled; electronic scoring and after-action analyses capabilities would not be available; and support facilities would be minimal. The CTR would be removed and the area restored when it is no longer needed by USARAK.

The CTR would be sited within the North Texas Range Study Area, to the east of the Delta River. The CTR is scheduled for completion by April 2004.

2.3 Alternatives

Three alternatives were considered, No Action, Alternative Sites, and Alternative Installations. The No Action Alternative would not meet the purpose and need for the Proposed Action described in Section 1.2 above. General alternative sites within Donnelly Training Area have no particular overall advantage over proposed sites; they also have environmental constraints (*e.g.*, conflicts with floodplains, quality habitats, wetlands). The Donnelly Drop Zone Study Area alternative site has some environmental and training advantages and disadvantages compared to proposed sites (Eddy Drop Zone Study Area and North Texas Range Study Area). Alternative installations are not feasible because they do not meet either training needs for USARAK troops and/or are not compatible with terrain and/or space at Fort Richardson or Fort Wainwright.

2.3.1 Alternative 1 – No Action

Consideration of the No Action Alternative is required by NEPA. The No Action Alternative represents status quo. It provides a basis of comparison for the action alternatives and also addresses issues of concern by avoiding or minimizing effects associated with the Proposed Action. Under this alternative, none of the projects would be constructed. This would, in effect, have the following mission consequences:

- USARAK would not have facilities to provide USARAK and other unit leaders and/or commanders with a combined arms collective training scenario to evaluate unit urban operations proficiency under simulated combat conditions, and
- USARAK would not provide tenant and visiting units with a standardized range on which to conduct platoon or greater-sized unit live firing.

This alternative ***will be considered*** in the environmental consequences analysis to provide a baseline for environmental conditions.

2.3.2 Alternative 2 – Alternative Sites

Alternative sites for the proposed three range facilities have been considered. Figure 2.3.2 shows the three general study areas that were considered, one on Donnelly West Training Area (North Texas Range Study Area) and two on Donnelly East Training Area (Donnelly Drop Zone Study Area and Eddy Drop Zone Study Area). The CACTF and BAX are proposed within the Eddy Drop Zone Study Area, and the CTR is proposed within the North Texas Range Study Area. However, even within those larger study areas, there are options for the placement and orientation of the three projects.

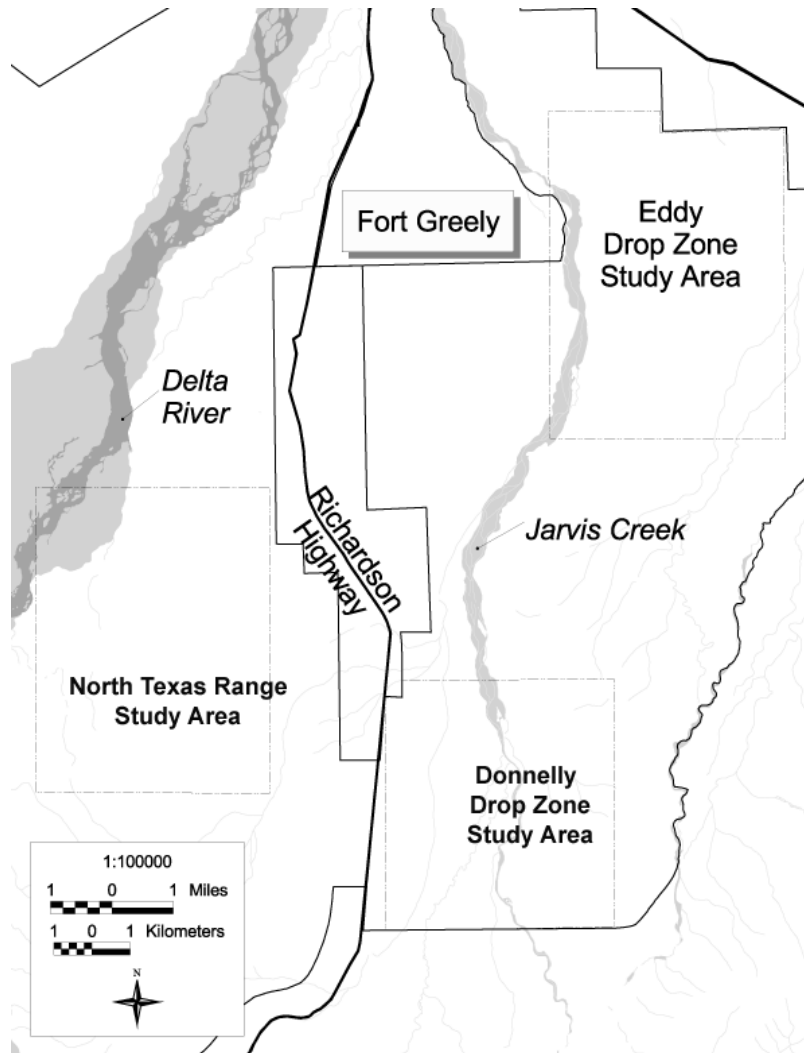
Actual footprints would not be nearly as large as the study areas. Maps in analyses sections show range footprints (as currently sited) within larger study areas. Impacts would be restricted to those portions of these range footprints that are actual construction sites (facilities, roads, trails, targetry.... all relatively small portions (less than 25%) of the ranges).

The Alternative Sites Alternative includes possible minor changes in range orientation and location within the Donnelly Drop Zone Study Area to minimize or avoid environmental impacts or better situate the ranges for military training purposes. There is no reason to suspect that such changes would significantly change analyses of environmental consequences, and they could reduce environmental impacts (*e.g.*, siting targetry, facilities, and roads to avoid an archeological site or a wetland).

Proposed sites are relatively ideal for mission accomplishment (with exception of overhead firing capability at Eddy Drop Zone Study Area) and have no significant environmental impacts (no affected significant cultural resources, avoidance of construction impacts to wetlands and other quality habitats to the greatest degree possible, etc.). It is ideal for the BAX and CACTF projects to be co-located to share common use facilities, particularly the after-action review facility, as well as provide for efficient use of range personnel and minimal travel time for troops using the ranges.

Ideally, as a part of training exercises, other weapons (*e.g.*, mortars, artillery) could be indirectly fired over this range or directly fired from this range to provide combat realism. Close air support could also be used to add training realism. This option would only be available at the North Texas Range Study Area, where mortars, artillery, and close air support munitions could be fired using current range

Figure 2.3.2. Proposed and Alternative Project Sites, Donnelly Training Area, Alaska



regulations and would not represent new military activities. These rounds, which could be dudded, could be fired into existing impact areas adjacent to the North Texas Range Study Area.

The lack of an impact area (particularly one that is already dudded) for the Donnelly Drop Zone and Eddy Drop Zone study areas makes their use somewhat less desirable. The use of impact areas west of the Richardson Highway is not feasible from the Donnelly Drop Zone Study Area since this would require firing over Richardson Highway and the Trans-Alaska pipeline. The same is true of Eddy Drop Zone, which would also require firing over Fort Greely, which is urbanized.

The creation of an additional impact area in East Donnelly Training Area would eliminate some of the best areas available for maneuver training and would create munitions contamination issues for mortar and artillery rounds or aircraft-delivered munitions used to support the BAX. Thus, this option will not be considered.

Jarvis Creek bisects the Donnelly Drop Zone Study Area. While this does not prevent the ranges from being constructed in this study area, it increases training opportunities as well as construction costs.

This alternative *will be discussed* in the environmental consequences to demonstrate comparisons between study areas.

2.3.3 Alternative 3 – Alternative Installations

The feasibility of siting the BAX, CACTF, and CTR at alternative installations (Fort Richardson and Fort Wainwright) has been considered. Figure 2.1a shows both alternative installations in relation to Donnelly Training Area.

Fort Richardson is not a viable installation for the siting of these ranges because most combat troops assigned to USARAK are stationed at Fort Wainwright. The distance to travel from Fort Wainwright to Fort Richardson would create large transportation and billeting costs and reduce training opportunities. Also, the relatively small size of Fort Richardson would create land use conflicts if the ranges were located there.

Fort Wainwright has no suitable terrain of an adequate size to support the BAX, which requires approximately 3,000 x 4,000 kilometers of relatively flat land. The only location that could partially meet these space needs is in Yukon Training Area, but this location is already planned for a new Multi-Purpose Training Range and Infantry Platoon Battle Course. Yukon Training Area would not provide sufficient space for a full complement of targetry required for the BAX. There are many advantages of co-locating both the BAX and CACTF (primarily sharing support facilities and maximizing the efficiency of training time). Since one function of the CTR is to serve as an interim training site during construction of the BAX and CACTF, this range must be located on the same installation as the BAX and CACTF.

This alternative *will not be considered* in the environmental consequences analysis.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section discloses potential environmental effects of each alternative and provides a basis for evaluating these effects in context relative to effects of other actions. Effects can be direct, indirect, or cumulative. Direct effects occur at the same place and time as the actions that cause them, while indirect effects may be geographically removed or delayed in time. This environmental assessment focuses on resources and issues of concern identified during the scoping process (see Section 1.3) and on differences in effects between the Proposed Action and its alternatives, No Action and Alternative Sites. Areas with no discernible or significant concerns or known effects, as identified in the scoping process, (Section 1.3.2) are not included in this analysis.

3.1 Soils

Additional information regarding soils on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.1.1 Existing Conditions

Few soils on Donnelly Training Area have been mapped in detail, with the exception of areas near Fort Greely. In general, soils are derived from glacial actions and modified by streams and discontinuous permafrost. The Natural Resources Conservation Service identified 12 soil associations in the area of Fort Greely and Donnelly Training Area (Rieger *et al.* 1979).). Soils in the northern, west-central, and eastern portions of the Donnelly West Training Area are silt loam associations, while the Donnelly East Training Area is predominantly shallow silt loam over gravelly sand. Soils in river floodplains consist of alternate layers of sand, silt loam, and gravelly sand. Highly organic wet soils and a high water table characterize muskeg soils, or they are underlain by permafrost. Upland foothills have moist, loamy soils, while mountain soils are rocky, steep, and unvegetated. Lowland soils have moderate erosion potential, while foothill soils have moderate to high erosion potential (Anonymous 1979).

Permafrost is a major factor influencing the distribution of vegetation and human activities. Permafrost is defined in seven categories in order of increasing ice content. The propensity for subsidence and frost action is proportional to the silt content of the soil. Any activity that removes the insulating vegetation mat or destroys the active layer above the permafrost table allows the ice mass to melt and irregular subsidence to occur. Once started, the thawing process is difficult to control. Maneuver or construction activities could result in this type of damage. Developed sites should have the lowest possible ice content, and steps should be taken to ensure adequate ground insulation (Nakata Planning Group 1987).

Isolated patches of permafrost exist under Donnelly Training Area's sandy gravel from 2 to 40 feet below ground level. Thickness of permafrost varies between 10 and 118 feet. Existing and abandoned river channels, lakes, wetlands, and other low-lying areas are permafrost-free (Williams 1970).

3.1.2 Environmental Consequences

Figure 3.1.2 and Table 3.1.2 (Rieger *et al.* 1979) show soil associations potentially affected by the Proposed Action on the three study areas and briefly describe these soil associations.

Figure 3.1.2. Soil Associations Potentially Affected by the Proposed Action

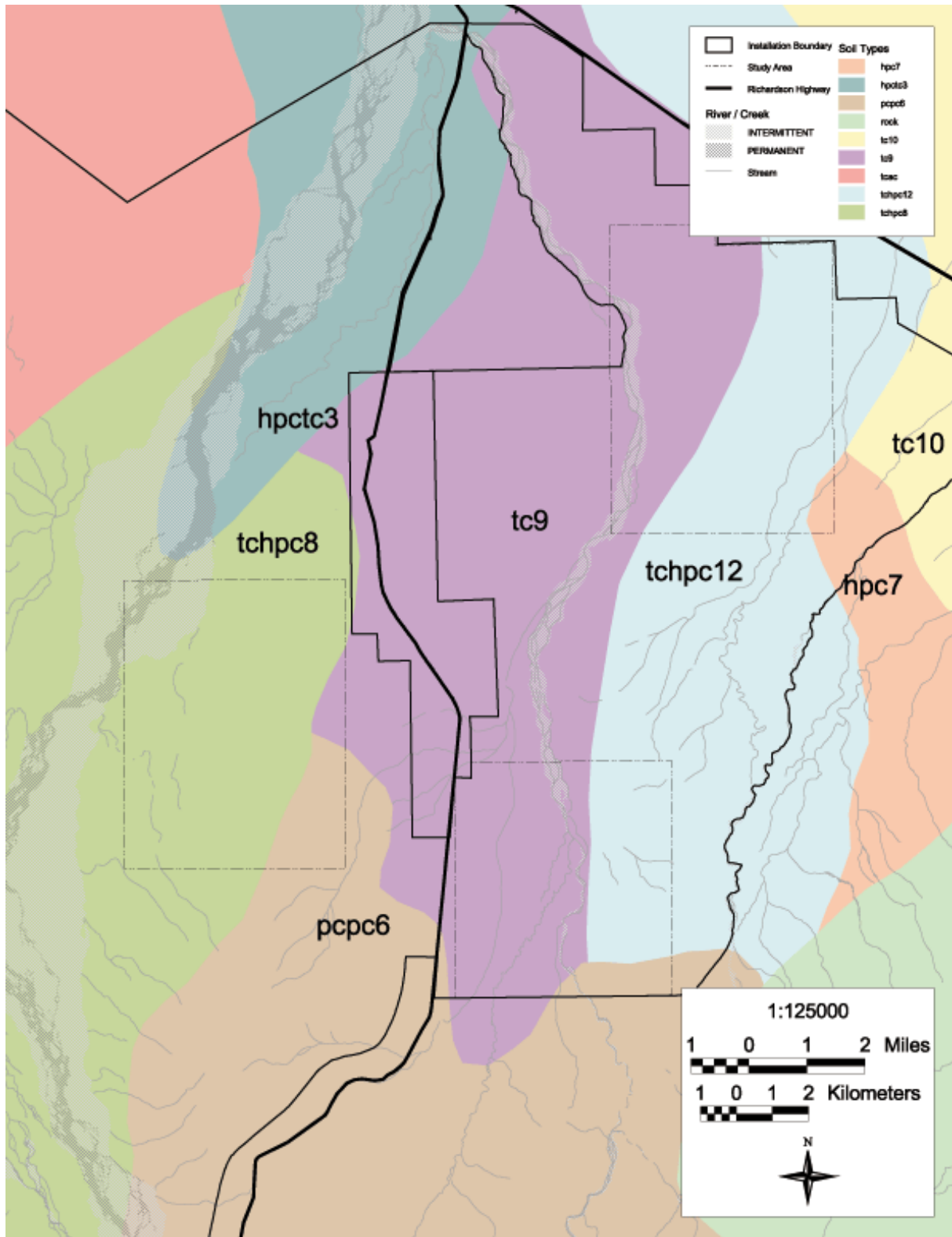


Table 3.1.2. Brief Description of the Soil Associations in Donnelly Training Area Study Areas.

Soil Map Unit	Soil Type	Location	Description
pcpc6	Pergelic Cryaquepts in association with Pergelic Cryochrepts	Foothills and moraines of the Alaska Range in the southern part of Fort Greely and Donnelly Training Area.	40% - poorly-drained gravelly and stony loams. 35% - well-drained gravelly and stony loams. Remainder – poorly-drained silt loams.
tchpc8	Typic Cryochrepts in association with Histic Pergelic Cryaquepts	Hilly portions along the Delta River in the eastern portion of Fort Greely and Donnelly Training Area.	45% - well-drained silt loams. 30% - poorly-drained shallow silt loams. Remainder - a mixture of very gravelly loams and silt loams.
tc9	Typic Cryochrepts	Terraces, outwash plains, and low moraines along Jarvis Creek.	70% - shallow silt loams. 30% - shallow loams or gravels and poorly-drained silty to gravelly soils.
tc10	Typic Cryochrepts	Hilly and steep moraines northeast of the Air Drop Zone.	65% - shallow silt loams. Remainder - gravelly loams.
tchpc12	Typic Cryochrepts in association with Histic Pergelic Cryaquepts	Moraines and footslopes to the east of Jarvis Creek.	65% - gravelly silt loams over very gravelly loams. Remainder - gravelly, stony silt loam or sand loam.

Proposed Action

Soils in the Eddy Drop Zone Study Area are Typic Cryochrepts (Soil Map Unit tc9) (northwestern portion), Typic Cryochrepts in association with Histic Pergelic Cryaquepts (Soil Map Unit tchpc12) (eastern and southern portions), and Typic Cryochrepts (Soil Map Unit tc10) (far southeastern corner). Soils in the North Texas Range Study Area are Typic Cryochrepts in association with Histic Pergelic Cryaquepts (Soil Map Unit tchpc8) (most of study area), Pergelic Cryaquepts in association with Pergelic Cryochrepts (Soil Map Unit pcpc6) (southeastern portion), and Typic Cryochrepts (Soil Map Unit tc9) (eastern border).

Soil disturbance would occur during construction, but best management practices to control erosion, such as the use of silt fences, would be used to ensure soils do not erode from the site or enter waterways. The general area is classified as 25-50% permafrost.

Pollutants; petroleum, oil, and lubricants; and any hazardous materials associated with military operations may directly impact soil resources. All USARAK units are required to possess and have available appropriate spill response materials for types and quantities of hazardous materials they may transport to support military operations. Any spills would be promptly cleaned up. All spills/releases must be reported to the Fire Department and to the Alaska Department of Environmental Conservation, Spill Prevention and Response who would then follow through with appropriate mitigative measures.

There is no known contamination of soils on proposed sites. If contamination is discovered during preconstruction or construction, appropriate soil remediation would be implemented. Remediation methods would be agreed upon by the U.S. Army, U.S. Environmental Protection Agency, and the Alaska Department of Environmental Conservation. Standard spill prevention measures would be taken during construction and operation of the ranges. Proposed construction would not have any effects on soils beyond construction sites.

There may be a requirement for fill beyond that created by range construction. In that event, established gravel pits would be used. These pits would be closed and revegetated when they are depleted. Such closure would not necessarily occur after completion of the Proposed Action if additional fill material is needed for other projects.

Alternative 1 – No Action

Soils would not be affected under this alternative. No construction would occur, and erosion rates would not exceed those occurring due to natural processes and ongoing military activities.

Alternative 2 – Alternative Sites

Soils in the Donnelly Drop Zone Study Area are Typic Cryochrepts (Soil Map Unit tc9) (eastern portion), Typic Cryochrepts in association with Histic Pergelic Cryaquepts (Soil Map Unit tchpc12) (primarily west of Jarvis Creek), and Pergelic Cryaquepts in association with Pergelic Cryochrepts (Soil Map Unit pcpc6) (southeastern boundary).

Soil disturbance would occur during construction, but best management practices to control erosion, such as the use of silt fences, would be used to ensure soils do not erode from the site or enter waterways. The general area of Donnelly Drop Zone Study Area is classified as 25-50% permafrost.

There is no known contamination of soils on proposed sites. If contamination is discovered during preconstruction or construction, appropriate soil remediation would be implemented. Remediation methods would be agreed upon by the U.S. Army, U.S. Environmental Protection Agency, and the Alaska Department of Environmental Conservation. Standard spill prevention measures would be taken during construction and operation of the buildings. Proposed construction would not have any effects on soils beyond construction sites.

3.2 Water Resources

Additional information regarding water resources on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.2.1 Existing Conditions

3.2.1.1 Surface Water

Donnelly Training Area's surface waters are diverse and include numerous rivers, streams, ponds, and lakes.

Rivers and Streams

Donnelly Training Area lies entirely within the Tanana River drainage basin. Surface water from around Fort Greely drains into the Delta River and Jarvis Creek. Surface water from the East Training Area drains into the Delta River and Granite, Ober, and Jarvis creeks. Surface water from the Texas Range Study Area drains into the Delta River. The Delta River drains directly into the Tanana River.

Glaciers that lie along or just south of the installation's southern boundary feed most rivers, streams, and creeks. Glacial meltwaters feed the Delta River, Delta Creek, and the Little Delta River from the Alaska Range. Principal glaciers include Canwell, Castner, and Black Rapids, which drain into the Delta River. Jarvis Creek is fed by meltwater from glaciers on Mt. Silvertip (Anonymous 1979).

The volume of surface water flow fluctuates dramatically by season. From October to May, flow is limited to groundwater seepage from aquifers into streams, and many small streams freeze solid (zero discharge). Snowmelt typically begins in May and reaches its peak in June. Flows are greatest during June and July. After July, most of the snow has melted, and a steady flow during August and September is sustained by rainfall.

The State of Alaska has not designated streams on Donnelly Training Area into water-use categories. Without such designations, fresh waters in Alaska are considered to be in their original and natural condition and suitable for all uses. The pH levels in the Delta River and Jarvis Creek are slightly alkaline, but they are within limits established by the State. Dissolved oxygen levels generally vary with water flow; oxygen levels are highest in June, July, and August and they may approach zero during periods of prolonged ice cover (Bonito 1980, Anonymous 1979).

Lakes and Ponds

Lakes are abundant on Donnelly Training Area, but information on their water quality has not been determined. Water samples collected from Bolio Lake had a pH of 8.8 to 9.2, a level beyond acceptable alkalinity as defined by the State. Most nitrogen in Bolio Lake is in organic forms (0.98 mg/l) with low concentrations of nitrates and nitrate nitrogen (0.02 mg/l). Samples collected from Bolio Lake in August 1975 had dissolved oxygen concentrations of 9.8 mg/l near the surface and 10.0 mg/l at a depth of 15 feet.

The Alaska Department of Fish and Game stocks 16 lakes with sport fish. Most other lakes on Donnelly Training Area are not suitable for stocking because they are inaccessible or too shallow (winter freezing).

3.2.1.2 Groundwater

Although surface water is abundant in the Tanana Basin, most of Donnelly Training Area's potable water is obtained from wells. Potential groundwater supply is greatest in the floodplain alluvium along the Little Delta River, Delta River, Delta Creek, and Jarvis Creek and in alluvial fans extending along northern flanks of the Alaska Range. The surface to groundwater depth at Donnelly Training Area is between 100 and 210 feet. Most wells on the post tap unconfined aquifers found in unconsolidated alluvial deposits. Groundwater recharge is from influent seepage of glacier-fed streams.

The quality of both surface and groundwater is presumed to be good. There have been no indications of changes in the quality of surface water since Army occupation of the land, and there has been only minor pollution of groundwater in localized areas, none of which are thought to affect human health.

3.2.2 Environmental Consequences

Figure 2.3.2 shows general hydrology of the three study areas.

Proposed Action

Figure 2.1b shows surface waters potentially affected by the Proposed Action within the Eddy Drop Zone Study Area. The Eddy Drop Zone Study Area is to the immediate east of Jarvis Creek. Range construction would avoid this creek and its floodplains. The study area has numerous lakes on its eastern and southern portions. None are managed for fishing.

The eastern portion of the Eddy Drop Zone Study Area has a ground water potential of 1,000-3,000 gallons per minute, and the remainder of the study area has a relatively low groundwater potential (less than 1,000 gallons per minute) (Center for Ecological Management of Military Lands Undated). There is no reason to suspect that any facilities associated with the Proposed Action would impact ground water quality. Standard procedures for spill prevention and if required, spill response, would be used during range construction and operation.

No significant streams pass through the North Texas Range Study Area (Figure 2.1c) with exception of the Delta River, which passes through the northwestern corner. Siting for the BAX and CACTF at the

E

North Texas Range Study Area would avoid the Delta River and its floodplain. The general North Texas Range Study Area has numerous lakes, some of which are intensively managed for fisheries. Proposed footprints for the ranges would include J and Ghost lakes, both of which are stocked and fished; however, both the BAX and CACTF would be sited to avoid construction footprints in these lakes.

The general North Texas Range Study Area has a relatively low ground water potential (less than 1,000 gallons per minute) (Center for Ecological Management of Military Lands Undated). There is no reason to suspect that any facilities associated with the Proposed Action would impact ground water quality. Standard procedures for spill prevention and if required, spill response, would be used during range construction and operation.

Alternative 1 – No Action

Neither surface nor ground waters would be affected under the No Action Alternative.

Alternative 2 – Alternative Sites

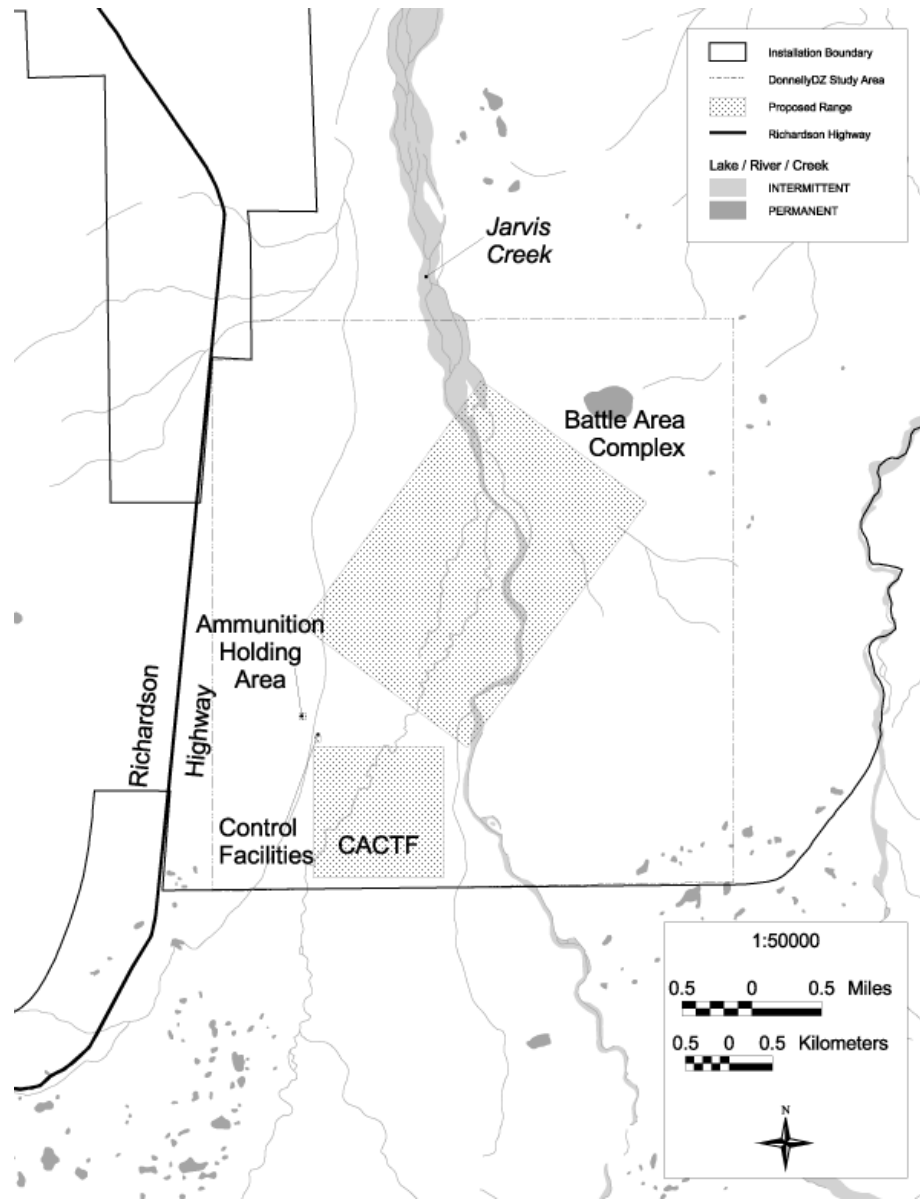
Donnelly Drop Zone Study Area is bisected by Jarvis Creek and its tributary, Ober Creek. The study area has lakes in the extreme southeastern corner (Figure 3.2.2). None are managed for fishing. Ranges would be sited to avoid construction footprints in creeks or lakes. However, if Donnelly Drop Zone Study Area were chosen, the BAX would likely include Jarvis Creek. This would create challenges crossing this creek during times of high water. If this site was chosen, construction would employ best management practices, such as the use of silt fences, to ensure soils do not enter waterways.

That portion of the Donnelly Drop Zone Study Area to the west of Jarvis Creek has a ground water potential of 1,000-3,000 gallons per minute, and the remainder of Donnelly Drop Zone Study Area has a relatively low groundwater potential (less than 1,000 gallons per minute) (Center for Ecological Management of Military Lands Undated). There is no reason to suspect that any proposed facilities would impact ground water quality at Donnelly Drop Zone Study Area. Standard procedures for spill prevention and if required, spill response, would be used during range construction and operation.

3.3 Noise

Noise can be assessed by two means. The first is by quantifying the average noise dose received at a location over a period of time. Average noise levels are calculated using computer models that take all noise activities over a period of time and generate noise contours that connect areas of equal energy. These noise contours are overlaid upon maps to show areas where the noise environment would be incompatible with noise-sensitive land uses.

The second way noise can be assessed is by “peak” or “maximum” noise levels. Peak levels can be used when there is not enough data available to run a noise model or when there is a chance that an infrequent noise event could generate complaints even though average noise levels are compatible with noise-sensitive land uses.

Figure 3.2.2 Hydrology at Donnelly Drop Zone Study Area

The most widely used metric for noise contouring is the day-night average sound level (DNL). The DNL represents energy-averaged sound levels measured by summation and averaging of sound exposure level values during a 24-hour period. A penalty of 10 decibels (dB) is assigned to noise events occurring between 10:00 p.m. and 7:00 a.m. The 10-dB penalty compensates for generally lower background noise levels and increased annoyance associated with events occurring at night. The DNL is a useful descriptor for noise in two respects. First, it is an average; it fits intuitive concepts when dealing with continuous noise, such as that from a busy highway. Second, because it is a summation of sound energy over a 24-hour period, it is a cumulative metric. For intermittent sound, it represents the total sound being received rather than the sound level at any given time. In this respect, it effectively identifies a “noise dose” for a day.

Noise from transportation sources, such as vehicles and aircraft, and from continuous sources, such as generators, is assessed using the A-weighted DNL, which significantly reduces the measured pressure

level for low-frequency sounds while slightly increasing the measured pressure level for some high-frequency sounds. Noise from small arms ranges is also assessed using A-weighted DNL.

Impulse noise resulting from armor, artillery, and demolition activities is assessed in terms of the C-weighted DNL, which characterizes high-energy blast noise and other low frequency sounds capable of inducing vibrations in buildings or other structures. The C-weighted scale does not significantly reduce the measured pressure level for low frequency components of a sound and therefore accounts for the potential of vibration.

Noise Zone III. Noise Zone III is an area around the source of the noise in which the DNL is greater than 75 dB, A-weighted for aircraft, vehicle, and small arms range noise, and greater than 70 dB, C-weighted for noise from weapon systems larger than 20-mm. The noise level within Noise Zone III is considered so severe that noise-sensitive land uses should not be considered therein.

Noise Zone II. Noise Zone II is an area where the day-night sound level is 65-75 dB, A-weighted or 62-70 dB, C-weighted. Exposure to noise within this area is considered significant and use of land within Noise Zone II should normally be limited to such activities as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II areas must be used for residential purposes, then noise level reduction features should be incorporated into the design and construction of the buildings.

Noise Zone I. Noise Zone I include all areas around a noise source in which the day-night sound level is less than 65 dB, A-weighted or less than 62 dB, C-weighted. This area is usually suitable for all types of land use activities.

3.3.1 Existing Conditions

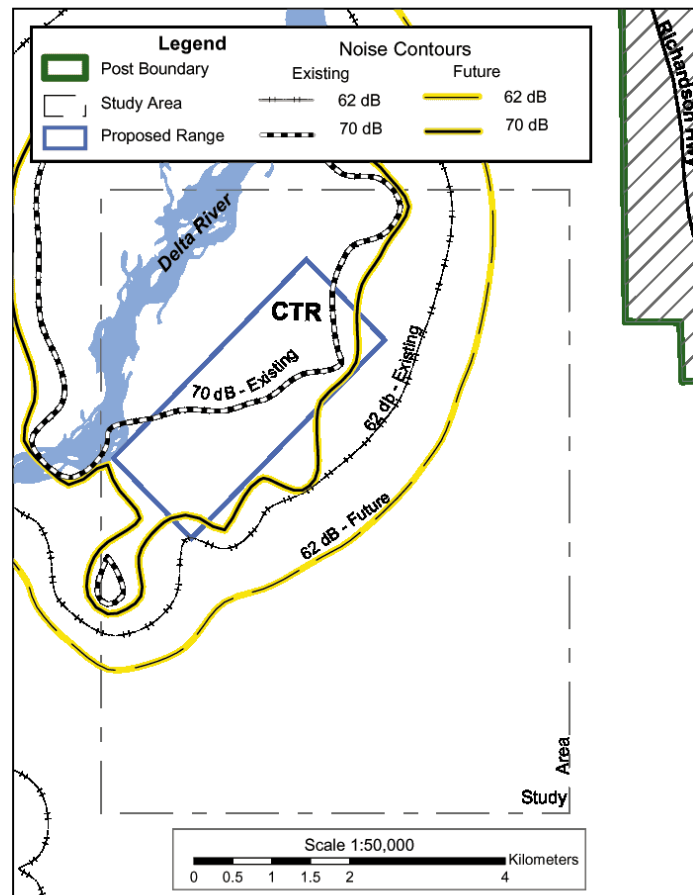
Figure 3.3.1 shows current noise levels within the North Texas Study Area, which are taken from Montgomery Watson (2001). Other study areas (Eddy Drop Zone and Donnelly Drop Zone) are within Zone I. The North Texas Range Study Area includes some Zone II and Zone III areas.

3.3.2 Environmental Consequences

Proposed Action

The proposed action would create two general types of noise: temporary construction noise and military operations noise. During construction, noise levels would increase in the immediate vicinity of the construction. This temporary noise should not go beyond the immediate area and would not impact lands off Donnelly Training Area. Military operations noise from the proposed actions would consist of two noise types: high amplitude impulsive noise (large caliber weapons and blast noise) and small arms noise.

Figure 3.3.1. Existing and Projected Noise Levels at North Texas Range Study Area



Small Arms

None of the proposed ranges would fire enough rounds to generate a noise contour off of Donnelly Training Area. Therefore, noise levels from small arms firing would be compatible with land use off the installation according to federal guidelines. Although both Eddy Drop Zone and North Texas Range study areas are near or on boundaries of Donnelly Training Area, none of the proposed ranges are closer than 1,000 meters from the boundaries, and all ranges are directed to the interior of the installation. That distance, coupled with the direction of fire, would keep noise levels low enough that there should be a very low risk of noise complaints. Table 3.3.2a lists expected maximum levels for the small arms that will be fired. Actual noise levels could be +/- 5 dB depending on weather conditions.

A Swedish study of annoyance caused by noise from shooting ranges (Sorensen and Magnusson 1979) showed the annoyance for this type of noise is low up to a certain threshold, after which it increases relatively quickly. For the A-weighted, fast-time, integrated maximum level, this threshold is approximately 63 dBA. At levels below this threshold, less than 2 percent of the population exposed to the noise consider themselves to be highly annoyed. At the threshold level, the percent highly annoyed increases to 10 percent and continues to increase as the noise level increases. Table 3.3.2b indicates the percentage of population highly annoyed from small arms range noise.

Table 3.3.2a. Small Arms Noise Levels

Maximum Noise Levels (dBA) For M16- 5.56mm Rifle

Direction of Fire-Degrees	1000m	2000m	3000m
0	65	55	48
45	63	53	46
90	58	48	40
180	46	36	29

Maximum Noise Levels (dBA) For M60- 7.62mm Machine Gun

Direction of Fire-Degrees	500 m	1000m	2000m	3000m
0	71	62	54	49
45	70	61	53	48
90	67	57	48	42
180	56	46	36	30

m – meters

Table 3.3.2b. Small Arms Noise Impacts

	Percent Highly Annoyed
dBA	
< 63	2
63	10
65	13
70	21
75	29
80	38

Large Caliber Weapons and Blast Noise

Eddy Drop Zone Study Area

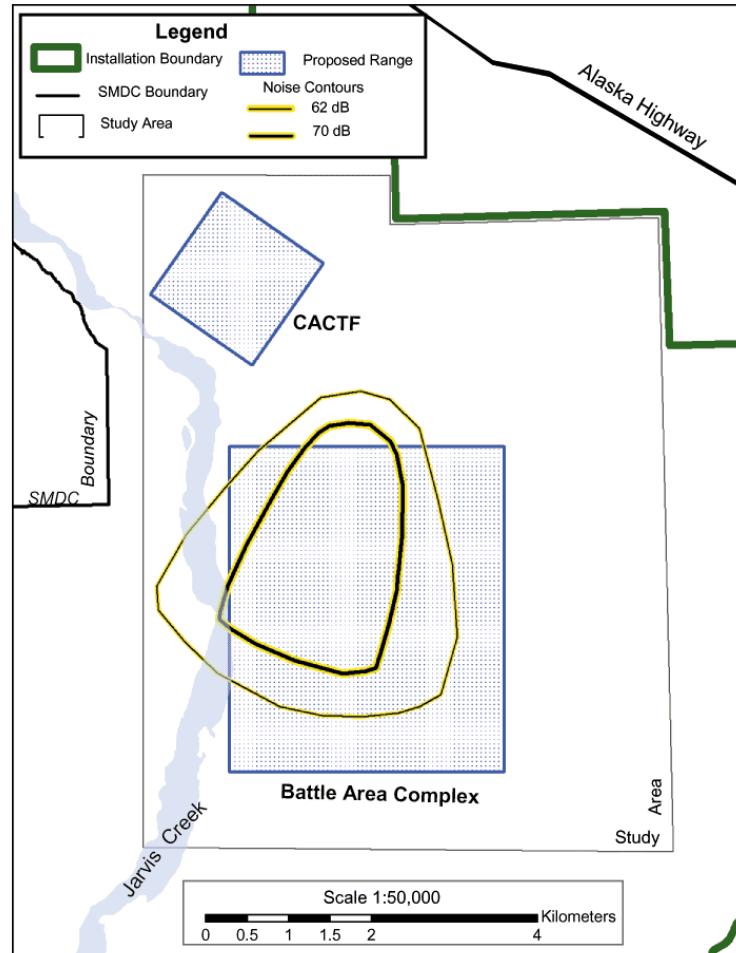
The Eddy Drop Zone Study Area is within Zone I. The proposed project would result in increased noise levels. As Figure 3.3.2 indicates, neither Zone III nor Zone II would be beyond boundaries of Donnelly Training Area.

North Texas Range Study Area

The North Texas Range Study Area includes Zone II and Zone III areas. The CTR, if constructed at North Texas Range Study Area, would have a greater noise impact than the proposed CACTF and BAX at Eddy Drop Zone Study Area or the alternative Donnelly Drop Zone Study Area since overhead artillery and mortar firing could be used as well as close air support. The proposed CTR, when completed, would be compatible with existing noise levels since this area already includes blast noise, primarily from artillery and mortar firing. As Figure 3.3.1 indicates, neither Zone III nor Zone II would be beyond boundaries of Donnelly Training Area.

Alternative 1 – No Action

The noise environment would be unaffected by the No Action Alternative.

Figure 3.3.2. Projected Noise Levels at Eddy Drop Zone Study Area**Alternative 2 – Alternative Sites**

The Donnelly Drop Zone Study Area is within Zone I. If projects were sited at this location, noise levels would increase. Both small arms and larger weapons/blast noise levels would be similar to those described for the proposed action. The risk of noise complaints from small arms fire would be minimal, and incompatible land use zones (Zone II and Zone III) would be within installation boundaries.

3.4 Air Quality

The Federal Clean Air Act authorizes the Environmental Protection Agency to establish national ambient air quality standard to protect public health. Standards for six pollutants (*i.e.*, ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, inhalable particulate matter, lead particles) have been adopted.

3.4.1 Existing Conditions

Donnelly Training Area has been designated as an attainment area for regulated pollutants. There are no significant air quality issues. Since Donnelly Training Area emits less than 100 tons of pollutants annually, no air quality permit is required.

3.4.2 Environmental Consequences

Proposed Action

The operation of heavy equipment during construction of the projects would release a non-significant amount of carbon monoxide into the air. Appropriate emission control devices on vehicles would minimize impacts to air quality during construction. Heavy equipment sources of carbon monoxide would not impact air quality during the critical winter season because construction using heavy equipment would only occur during warmer months.

Operation of the facilities would result in minor amounts of additional energy production (primarily electricity). Air quality permits would not be required. If any significant use of backup generators or oil-fired heaters were to occur, the requirements for air quality permits would be addressed by the USARAK Environmental Department. However, neither backup generators nor oil-fired heaters are anticipated to be required.

Alternative 1 – No Action

Air quality would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

The analysis of impacts on air quality for the Alternative Sites Alternative would be the same as for the Proposed Action.

3.5 Floral Resources

Additional information regarding floral resources on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.5.1 Existing Conditions

Donnelly Training Area has five recognized cover types: ice and snow; alpine tundra; moist tundra; open, low growing spruce forests; and closed, spruce-hardwood forests (Viereck and Little 1972). The huge landscapes at Donnelly Training Area encompass a wide array of physiographic settings. Patterns of vegetation are determined by a variety of natural influences, including climate, topography (slope, aspect, and elevation), glaciation, flooding, depth to water table, and most importantly, permafrost and fire. A typical vegetation profile from the north slope of the Alaska Range to the Tanana River floodplain includes: barren areas (rock, gravel, snow, and/or ice), alpine tundra, moist tundra, forests (black spruce, white spruce, deciduous, and mixed), tall shrubs, barren, and water (Anonymous 1979; Bonito 1980). This vegetation profile does not precisely match Viereck and Little's (1972) vegetation types, which were assessed on a statewide basis. Wetlands occur at various altitudes and sometimes only during early vegetation successional stages. Local conditions often result in combinations or the absence of a vegetation type when moving up or downslope.

3.5.1.1 Floristic Inventory

During 1997 and 1998 U.S. Army Cold Regions Research and Engineering Laboratory conducted a floristic inventory at Donnelly Training Area and collected 723 specimens. These collections represented 497 vascular plant taxa from 64 families and 198 genera. Eleven species represent significant range extensions (>150 km) (Racine *et al.* 2001).

3.5.1.2 Listed and/or Rare Plants

Interior Alaska has no federally-listed threatened, endangered, or candidate plant species. Appendix A has a copy of a letter from the U.S. Fish and Wildlife Service confirming that no federally-listed species are known on Army lands in Alaska and that consultation under Section 7(a)(2) of the Endangered Species Act, 16 USC 1536(a)(2) is not required.

Table 3.5.1.2 indicates vascular plants being tracked by the Alaska Natural Heritage Program's Biological Conservation Database (Alaska Natural Heritage Program 2001) for interior Alaska that could be found on Donnelly Training Area (Racine *et al.* 2001, updated).

Table 3.5.1.2. Global and Alaska Rankings for Donnelly Training Area Plants Being Tracked by the Alaska Natural Heritage Program.

Species	Common Name	Global Ranking*	Alaska Ranking**
<i>Artemisia laciniata</i>	laciniate sagewort	G5	S2
<i>Carex crawfordii</i>	Crawford's sedge	G5	S2S3
<i>Carex deweyana</i>	Dewey sedge	G5	SE?S1
<i>Carex eburnea</i>	bristleleaf sedge	G5	S2S3
<i>Carex sychnocephala</i>	manyhead sedge	G4	S1
<i>Cryptogramma stelleri</i>	fragile rock-brake	G5	S2S3
<i>Dodecatheon pulchellum</i> ssp. <i>pauciflorum</i>	few flowered shooting star	G5T5Q	S2
<i>Draba incerta</i>	Yellowstone draba	G5	S2S3
<i>Glyceria pulchella</i>	MacKenzie Valley mannagrass	G5	S2S3
<i>Phlox hoodii</i>	spiny phlox	G5	S1S2
<i>Phlox sibirica</i> ssp. <i>richardsonii</i>	Richardson's phlox	G4T2T3Q	S2?
<i>Potamogeton obtusifolius</i>	bluntleaf pondweed	G5	S1
<i>Salix setchelliana</i>	Setchell's willow	G3G4	S3
<i>Saxifraga adscendens</i> spp. <i>oregonensis</i>	small saxifrage	G5T4T5	S2S3
<i>Sisyrinchium montanum</i>	strict blue-eyed grass	G5	S1
<i>Stellaria alaskana</i>	Alaska starwort	G3	S3
<i>Viola selkirkii</i>	Selkirk's violet	G5?	S3

<p>* Alaska Natural Heritage Program Rare Species Global Rankings</p> <p>G3 Either very rare and local throughout its range or found locally in a restricted range (typically 21-100 occurrences)</p> <p>G4 Apparently secure globally</p> <p>G5 Demonstrably secure globally</p> <p>G#G# Global rank of species uncertain; best described as a range between the two ranks</p> <p>G#T# Global rank of species and global rank of the described variety or subspecies of the species</p> <p>Q Taxonomically questionable</p> <p>? Inexact</p>
<p>** Alaska Natural Heritage Program Rare Species State Rankings</p> <p>S1 Critically imperiled in the state because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state (typically 5 or fewer occurrences, or very few remaining individuals or acres)</p> <p>S2 Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences, or few remaining individuals or acres)</p> <p>S3 Rare or uncommon in the state (typically 21-100 occurrences)</p> <p>S4 Apparently secure in the state, with many occurrences</p> <p>S#S# State rank of species uncertain; best described as a range between the two ranks</p> <p>SE possibly introduced</p>

Salix setchelliana and *Stellaria alaskana* are endemic to the region. Other taxa in Table 3.5.1.2 are peripheral species, with larger populations centered further south in North America or west in Asia.

3.5.1.3 Wetlands

Wetlands occur in a variety of forms; on Donnelly Training Area most are shrub wetlands. Shrub wetlands, also known as bogs or low brush, are associated with slightly higher relief of marsh edges and poorly-drained basins and depressions with cold, waterlogged soils. The surface primarily consists of a thick layer of peat over a mottled gray silt or silt loam. If not exposed, the water table is only a few inches beneath the surface and during periods of heavy precipitation may form temporary lakes. Depth to ice-rich permafrost is often less than 30 inches. Ground cover is characterized by a dense accumulation of mosses, lichens, sedges, rushes, liverworts, mushrooms, and other fungi. Stunted black spruce occasionally occurs. Along the margins of bogs and in drier areas, grasses, small shrubs, and smaller trees, such as willow and dwarf Arctic birch, proliferate (Anonymous 1979).

Wetlands may or may not qualify as jurisdictional wetlands, as defined in Section 404 of the Clean Water Act. The Corps of Engineers determines jurisdictional wetlands on the basis of hydric soils, vegetation, and hydrology.

3.5.1.4 Forest Resources

Upland forests include birch and aspen forests, mixed hardwood-white spruce, and white spruce forests on relatively well-drained, warm sites. Stands dominated by white spruce are the oldest and least common upland forest type, generally growing only where no severe natural disturbance has occurred for 100 years or more.

Lowland forests include balsam poplar, mixed balsam poplar-spruce, and white spruce stands. Mixed birch-spruce stands also occur, especially on older lowland sites. Lowland sites are subject to a variety of natural disturbances – erosion, flooding, and ice damage near active river channels; fire; insects and disease; windthrow; and themokarsting.

Mapping by the Joint Federal-State Land Use Commission indicated that about 20,800 acres of Fort Greely and Donnelly Training Area are covered by spruce-poplar forest. Only 27% of forests in the Tanana Valley have commercial timber potential. Many stands are unharvestable due to access and contamination by unexploded ordnance. Current commercial potential for the remainder is limited to firewood and sawtimber and half-log, white spruce markets.

The Tanana Chiefs Conference, Inc. (1993) conducted an inventory of forest resources on military land withdrawals within interior Alaska. The inventory included about 60% of Fort Greely and Donnelly Training Area. The total inventoried area determined to have commercial forest potential on Fort Greely and Donnelly Training Area was 158,487 acres or about 40%, while 54% was classified as non-forested land, 3% as rivers, and 3% as other waters. On Fort Greely and Donnelly Training Area, sawtimber stands cover 1,555 acres and have a total volume of 4,900,000 cubic feet of lumber. White spruce accounts for 79% of the sawtimber (by acreage); mixed white spruce/hardwood is the remaining 21%. Poletimber stands comprise 58,102 acres, and have a total volume of 100,300,000 cubic feet of lumber. White spruce poletimber is found on 26,640 acres with a total volume of 58,600,000 cubic feet; about 69% of white spruce poletimber occur within restricted areas. Hardwood poletimber is about 16% of the total volume, followed by white spruce/hardwood at 12%, mixed black spruce/white spruce/hardwood at 8.4%, and white spruce/balsam poplar at 3.7%.

Approximately 132 acres of white spruce sawtimber could be harvested annually, producing a sustainable yield of 223,080 cubic feet or 642,708 board feet of lumber. Hardwood harvest could occur on 219 acres/year, yielding 160,965 cubic feet or 65,919 board feet of lumber (Tanana Chiefs Conference 1993).

3.5.1.5 Role of Fire

Interior Alaska's vegetative pattern is largely influenced by fire. On Donnelly Training Area, fires are most frequent on northern portions of the Donnelly West Training Area. Between 1956 and 1987, 60 known fires burned over 150,000 acres in the Fort Greely and Donnelly Training Area/Delta Junction area. Particularly large fires included a 17,500-acre fire west of the East Fork of Little Delta River and a 35,450-acre fire near Delta Creek in 1971, a 43,500-acre fire east of Jarvis Creek in 1987, the 54,413-acre Carla Lake Fire in 1998, and the 18,000-acre Donnelly Flats Fire in 1999 (Bureau of Land Management and U.S. Army 1994, Bonito 1980).

The first year after a fire, grasses, fireweed, horsetail, and morel mushrooms are common. Grasses and sedges along streams recover quickly, and birch seeds germinate by the second year. In wet muskeg, a continuous cover of grasses usually can be found within three to five years after a fire. Willow, Labrador tea, and birch recover first, followed by black spruce; perhaps 100-200 years later, spruce-dominated sites develop again into muskegs (Bonito 1980). Post-fire successional stages can differ from this based on the ecotype that burned, the intensity of the fire, and numerous other variables (Randi Jandt, personal communication in Natural Resources Branch 2001).

Lichens may take 50-150 years to recover after a burn. On dry sites, aspen and birch replace willow. Birch may remain for 150 years and may be replaced by white spruce. Repeated burning tends to favor birch/aspen communities.

Fire suppression priorities are grouped into four categories: Critical, Full, Modified, and Limited. Summaries of each category (Anonymous 1982) are presented below.

Critical Management Option: Critical Management areas receive maximum detection coverage and are highest priorities for attack response. Immediate and aggressive initial attack is provided. Land

owners/managers are notified of the situation as soon as possible. Critical Management areas receive priority over adjacent lands and resources in the event of escaped fires.

Full Management Option: Full Management areas receive maximum detection coverage and receive immediate and aggressive initial attack responses. If the initial attack response is successful or the fire is otherwise controlled within the first burning period, special agency notification is not required. When fires escape initial attack and require additional suppression, affected land owners/managers are notified to develop further fire strategy.

Modified Management Option: This option provides a management level between Full and Limited. The intent is to provide a relatively high degree of protection during periods of increased fire danger, but a lower level of protection when risks of fires are diminished. Modified Management areas receive maximum detection coverage. Initial attack action, or non-action, is based on a standardized evaluation date determined by the Alaska Interagency Wildland Fire Coordination Group. Unmanned fires are monitored.

Limited Management Option: This option recognizes areas where natural fire is important or the values at risk do not warrant the expense of suppression. Limited Management areas receive routine detection effort. Attack response is based on needs to keep the fire within Limited Management areas and to protect individual Critical management sites within Limited Management areas. Land owners/managers are immediately notified of fires detected. Unmanned fires are monitored.

3.5.2 Environmental Consequences

Table 3.5.2a indicates vegetation potentially affected by the Proposed Action and its Alternative Sites Alternative.

Proposed Action

General Vegetation

Figures 3.5.2a and 3.5.2b and Table 3.5.2a indicate vegetation potentially affected by the Proposed Action based on the Ecological Land Survey (Jorgenson *et al.* 2001) ecotype geographic information system layer. However, even within these large study areas, there are options for the placement and orientation of the ranges. Actual footprints would not be nearly as large as the study areas. Figures 3.5.2a and 3.5.2b show range footprints (as currently sited) within larger study areas. Impacts would be

Table 3.5.2a. Vegetation Potentially Affected By Proposed Projects

Vegetation Classification	Acres Potentially Affected (Total Study Area)*		
	North Texas Range (Proposed)	Donnelly Drop Zone	Eddy Drop Zone (Proposed)
Barrens	511.99	390.15	550.80
Broadleaf Forest	722.6	320.47	2,356.60
Dwarf scrub	241.4	40.3	30.37
Low scrub	4,241.3	4,015.57	1,516.18
Low or tall scrub	1,351.7	632.99	720.71
Mixed forest	588.4	141.44	2,815.29

Vegetation Classification	Acres Potentially Affected (Total Study Area)*		
	North Texas Range (Proposed)	Donnelly Drop Zone	Eddy Drop Zone (Proposed)
Needleleaf forest	779.5	2,851.20	3,496.56
Ponds or lakes	280.0	42.4	97.08
River or stream	628.6	141.7	151.53
Shrub tussock	2,424.5	1,056.28	786.0
Tall scrub	90.0	27.3	0.0
Totals	11,857.9	9,659.92	12,521.6

* See text for explanations of actual estimates of impacts to vegetation.

restricted to those portions of these range footprints that are actual construction sites (facilities, roads, trails, targetry.... all relatively small portions (less than 25%) of the ranges.

Wetlands (for the entire study area) potentially affected by the Proposed Action and its Alternative Site Alternative are as follows.

North Texas Range Study Area (Proposed) – 3,763.9 acres

Eddy Drop Zone Study Area (Proposed) – 3,218.4 acres

Donnelly Drop Zone Study Area (Alternative) – 2,443.7 acres

Actual impacts would be restricted to only a small portion of the individual range(s) footprint where facilities, roads/trails, or targetry construction cannot avoid wetlands. Precise acreage of affected wetlands would be calculated after final design to be used for the wetland permit application process.

Land potentially affected by the Proposed Alternative at Eddy Drop Zone Study Area has primarily needleleaf, broadleaf, and mixed forest vegetation with some low scrub. Ranges would be sited primarily in forested areas.

Eddy Drop Zone Study Area has the most forested vegetation of the three study areas. Live fire would eventually kill taller vegetation within firing lanes or directly behind targets. Existing vegetation would either be removed during construction or eventually killed on a considerable portion of that site. Thus, there would be significant changes to general vegetation compared to the present. It is desirable to

Figure 3.5.2a. Vegetation at Eddy Drop Zone Study Area

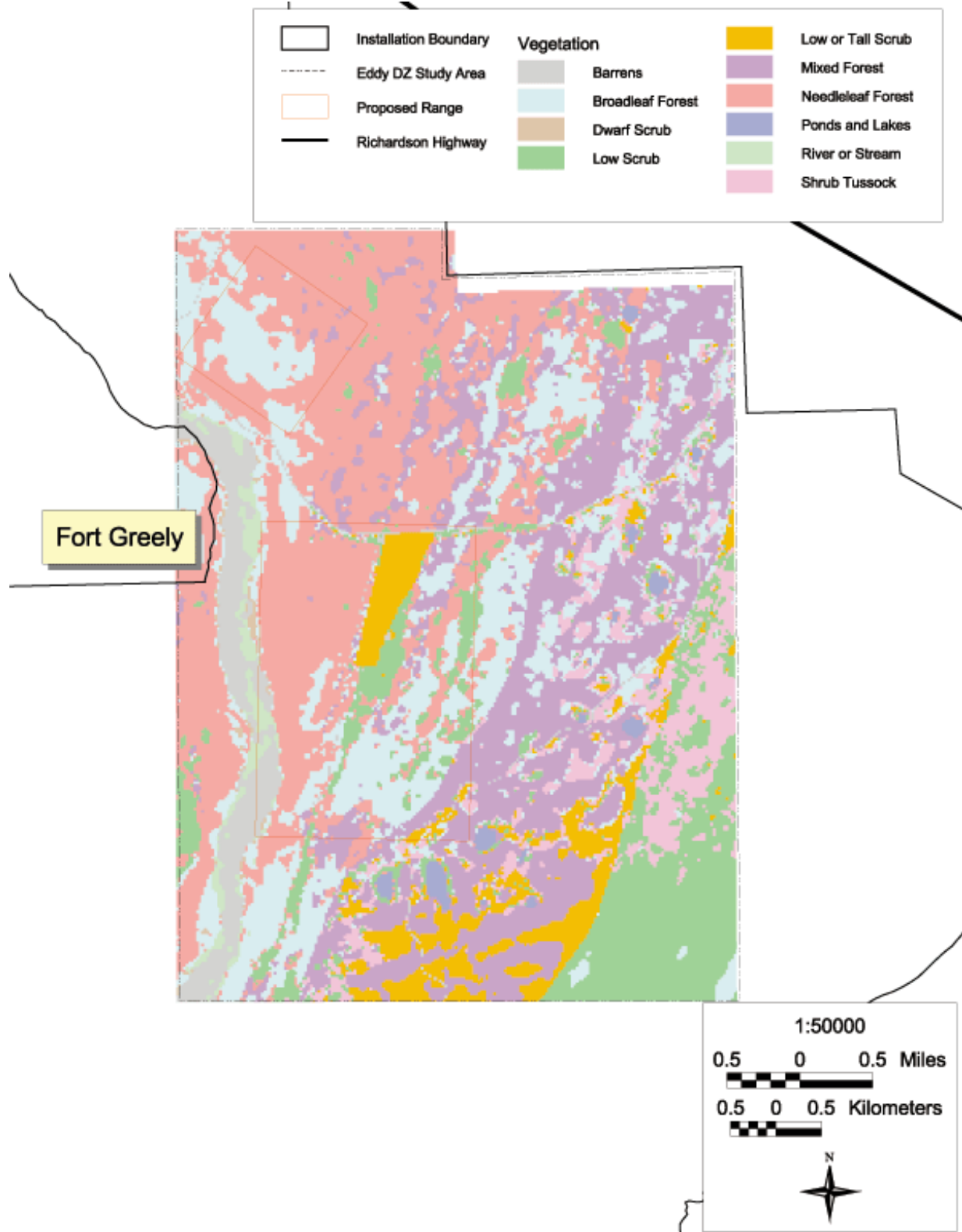
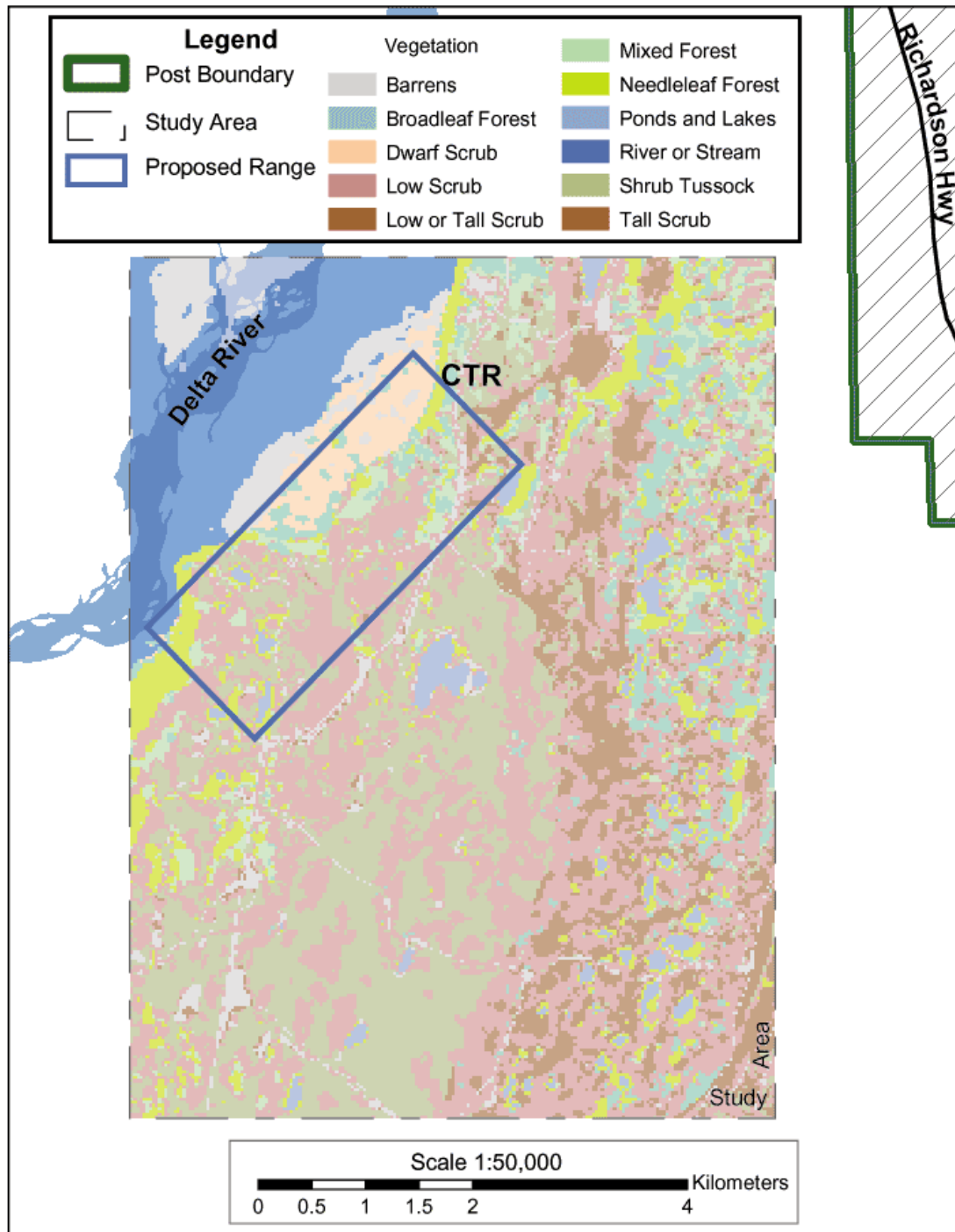


Figure 3.5.2b. Vegetation at North Texas Range Study Area



maintain natural ground cover as much as possible for training realism and soil and hydrology stabilization.

Land potentially affected by the Proposed Action at North Texas Range Study Area has primarily low scrub and shrub tussock vegetation. There is relatively little forest or other taller vegetation on the North Texas Range Study Site compared to the other study areas. Live fire would eventually kill taller vegetation within firing lanes or directly behind targets. Native grasses would be established where soils are disturbed around buildings and targets and alongside firing lanes. Thus, existing vegetation would be less impacted at the North Texas Range than at the Donnelly Drop Zone alternative site or the other proposed Eddy Drop Zone site.

It is desirable to maintain natural ground cover as much as possible for training realism and soil and hydrology stabilization. Within a short time after construction, there would be very few noticeable changes to general vegetation in North Texas Range Study Area compared to the present. The North Texas Range Study Area has significantly more lakes and ponds than the Donnelly Drop Zone alternative site or the Proposed Eddy Drop Zone site. These would not be affected by construction or range operation.

Listed and/or Rare Plants

USARAK used its Ecosystem Management Analysis program to determine the quality of habitat in the Eddy Drop Zone Study Area for each sensitive plant species. This program generated maps based on the Ecological Land Survey (Jorgenson *et al.* 2001) ecotype geographic information system layer and USARAK-assigned habitat preference values for each species of concern. Types of habitats occupied by these plants were obtained from the floristic inventory (where they were actually found on post), from local expertise, and also based on information given with each species description in three reference books: *Anderson's Flora of Alaska and Adjacent Parts of Canada* (Welsh 1974), *Flora of the Yukon Territory* (Cody 1996), and *Flora of Alaska and Neighboring Territories* (Hulten 1968).

Inventories have documented none of these species within boundaries of the Eddy Drop Zone Study Area. *Carex crawfordii*, *Carex deweyana*, *Carex eburnea*, *Cryptogramma stelleri*, *Glyceria pulchella*, *Sisyrinchium montanum*, and *Viola selkirkii* have been found within a few miles of the Eddy Drop Zone Study Area and could exist there based on habitat preferences. Potential habitat exists within Eddy Drop Zone Study Area for *Carex synchnocephala*, *Phlox hoodii*, *Potamogeton obtusifolius*, and *Salix setchelliana*. Surveys for these plants would be made at construction and target sites on the BAX and CACTF to avoid these species, whenever possible.

Inventories have documented three species (*Artemisia laciniata*, *Carex synchocephala*, and *Potamogeton obtusifolius*) within boundaries of the North Texas Range Study Area. *Carex eburnea*, *Dodecatheon pulchellum* ssp. *pauciflorum*, and *Salix setchelliana* have been found within a few miles of the North Texas Range Study Area and could exist there based on habitat preferences. Potential habitat exists within the study area for *Carex crawfordii*, *Carex deweyana*, *Cryptogramma stelleri*, *Draba incerta*, *Phlox hoodii*, *Sisyrinchium montanum*, and *Viola selkirkii*. Surveys for these plants would be made at construction and target sites on CTR to avoid these species, whenever possible.

Wetlands

Figure 3.5.2c indicates wetlands that could be affected by the construction of the BAX and CACTF within the Eddy Drop Zone Study Area. Figure 3.5.2d indicates wetlands that could be affected by the construction of the CTR within the North Texas Range Study Area.

Figures 3.5.2a and 3.5.2b show range footprints (as currently sited) within larger study areas. Actual impacts would be restricted to only a small portion of the individual range(s) footprint where facilities, roads/trails, or targetry construction cannot avoid wetlands. Many of these can be sited to avoid wetlands at final design. Impacts to North Texas Range, in particular, would be much smaller since the Collective Training Range is quite small with few facilities and less targetry than the other two ranges. Precise acreage of affected wetlands would be calculated after final design to be used for the wetland permit application process

Wetlands protection is required by Executive Order 11990, *Protection of Wetlands*. Silt fences and other construction techniques would be used to prevent siltation of wetlands during construction. Construction would remove the least amount of vegetation possible to avoid melting permafrost, which could affect wetlands.

The U.S. Army Corps of Engineers would be consulted to delineate jurisdictional wetlands within the project area. USARAK would obtain Section 404 permits specific to these individual range projects, as required. Mitigation measures for wetlands would be identified in the wetlands permit and implemented by USARAK.

Forest Management

Both proposed study areas (Eddy Drop Zone and North Texas Range) are medium priorities for forest management during 2002-2006. The actual Eddy Drop Zone, however, is high priority due to the need to maintain it free of trees. Forest management at either proposed study area could include timber, fuelwood, or Christmas tree sales to accomplish military or ecosystem objectives and/or timber stand improvement, timber management, timber sales, and timber salvage cuts to accomplish habitat improvement or to improve the commercial value of forest tree species (Natural Resources Branch 2001). Considering forest management priorities and available markets, commercial sales of forest resources are not expected in North Texas Study Area in the foreseeable future, with or without the Proposed Action.

There could be one-time timber sales conducted on either or both proposed sites to clear timber for range construction. However, there are significant issues (primarily available markets) that might make this type of removal impracticable.

The current value of any timber removed by construction contractors would be deposited by these contractors in the Army Forestry Reserve Account (Army Regulation 200-3) if it were removed without a timber sale. The contractors would, in effect, purchase the timber from the Army. The current value of such timber, based on State of Alaska, Division of Forestry fuelwood timber sales, is approximately \$2.00 per hundred cubic feet of timber. A timber cruise would be conducted to determine the volume and value of affected timber after the final construction footprint is determined.

Special Interest Areas

Donnelly Training Area has areas with special natural features. These areas harbor sensitive or unique wildlife species or represent unique plant communities (Natural Resources Branch 2001). Figure 3.5.2e shows special interest areas that include the Eddy Drop Zone Study Area and both alternative study areas.

Figure 3.5.2c. Wetlands at Eddy Drop Zone Study Area

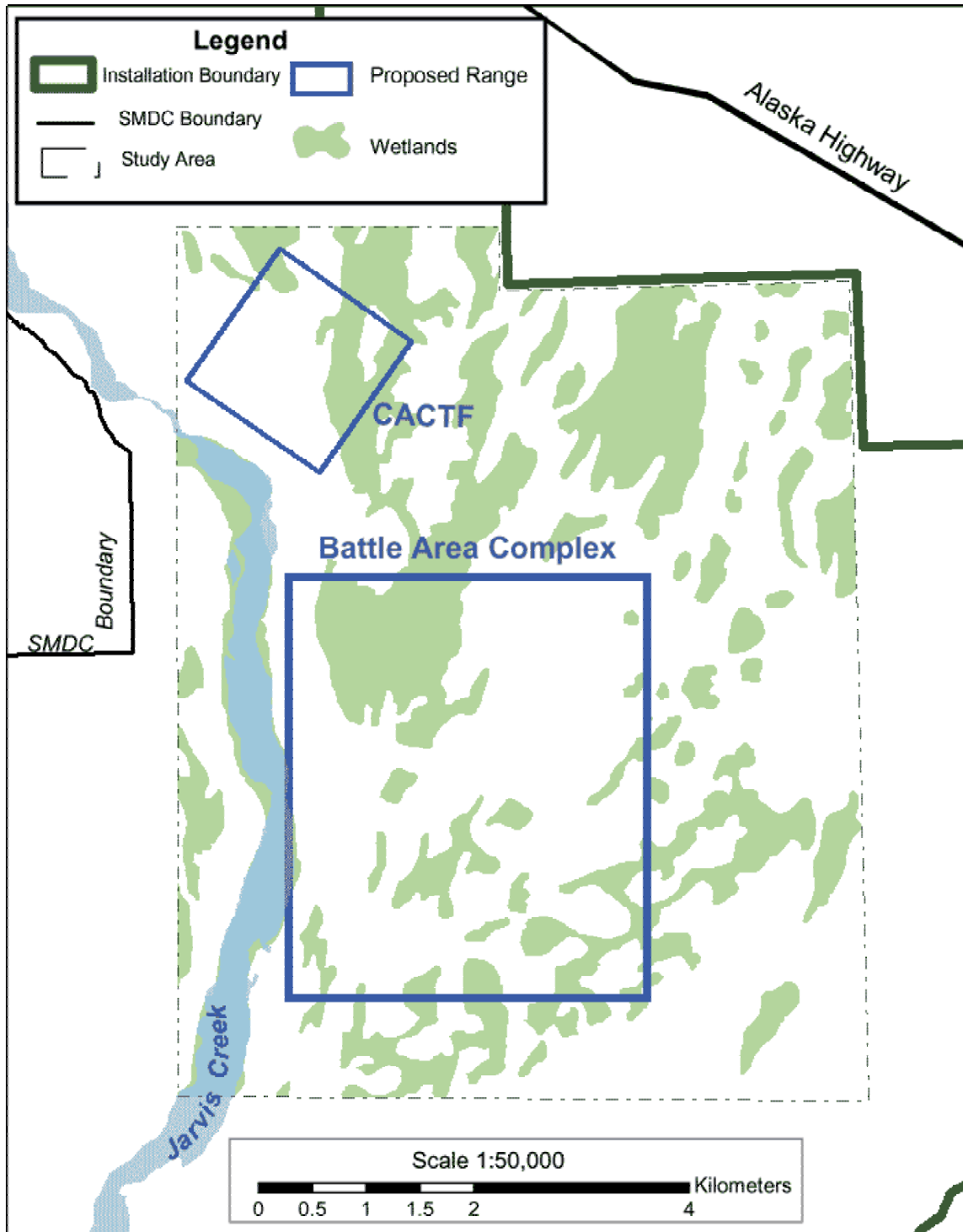
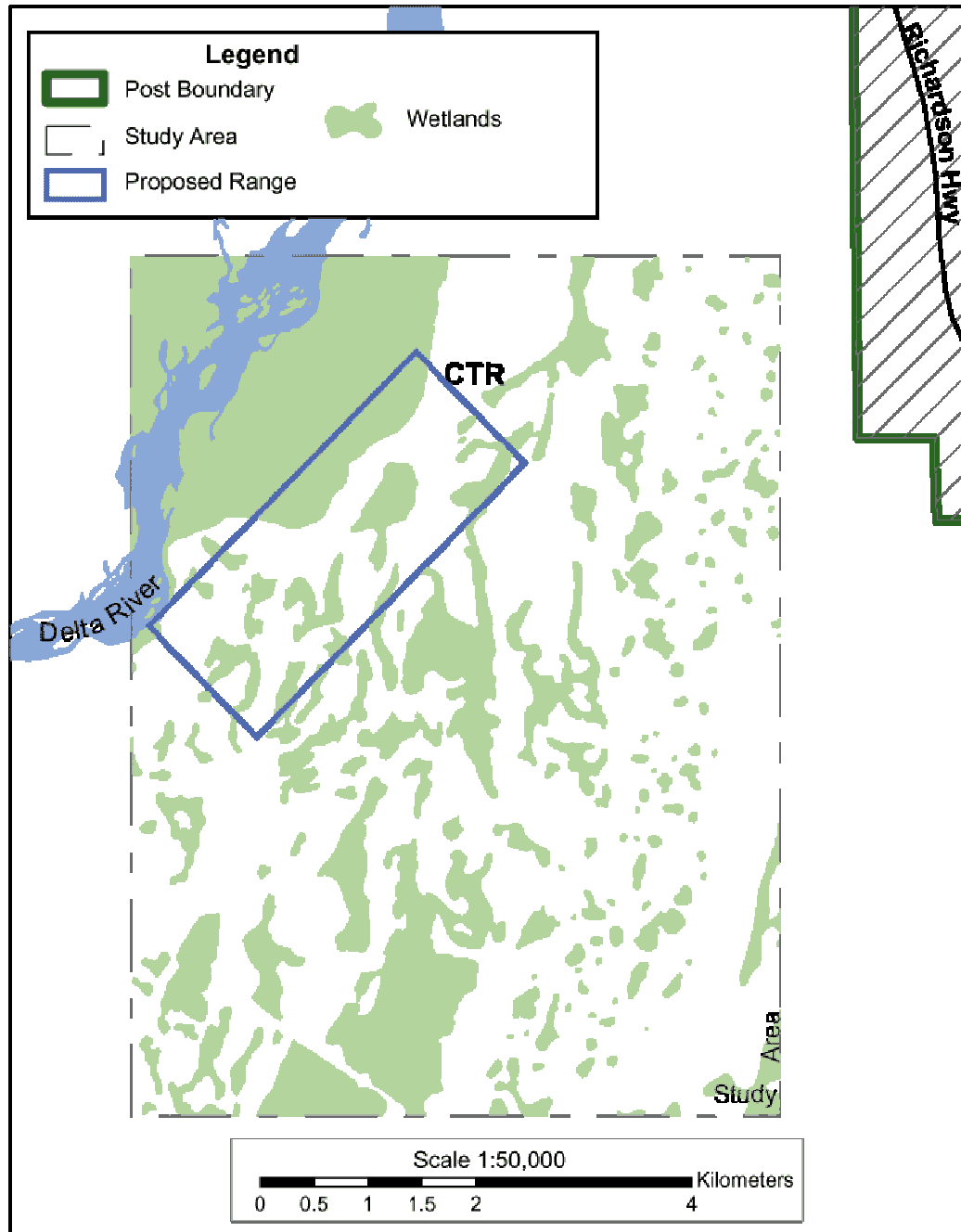


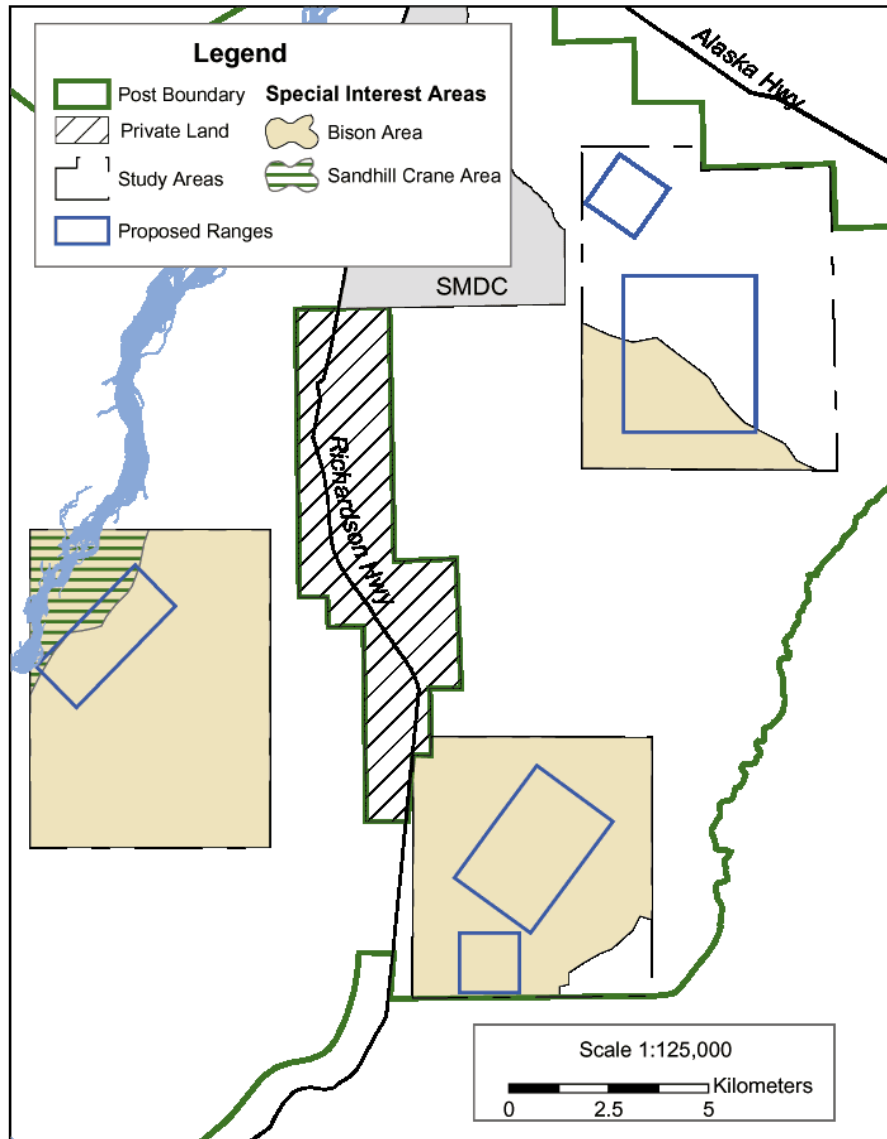
Figure 3.5.2d. Wetlands at North Texas Range Study Area



The southern half (919.1 acres) of the Eddy Drop Zone Study Area BAX site is within the Bison Special Interest Area. The Eddy Drop Zone Study Area has 3,044.6 acres of Bison Special Interest Area. The study area does not include any other special interest areas.

The North Texas Range Study Area has 10,767.4 acres of Bison Special Interest Area and 1,093 acres of Sandhill Crane Special Interest Area.

Figure 3.5.2e. Special Interest Areas at Proposed and Alternate Sites



Delta Bison Special Interest Area. A 1980 cooperative agreement (Bonito 1980) designated areas as important bison (*Bison bison*) calving and summer range on the Donnelly West Training Area. The 1980 agreement also identified the Donnelly East Training Area as important late summer and early winter range. An agreement in 1986 with the Alaska Department of Fish and Game (U.S. Army 1986) identified bison calving and summer range. USARAK has imposed restrictions to limit disturbance to bison calving areas from 15 April through 15 June, if bison are present. The Proposed Action would not affect these restrictions. In addition, USARAK would not fire on these ranges when bison are present, regardless of time of year. See sections 3.6.1.1 (*Mammals – Faunal Resources*) and 3.6.2 (*Environmental Consequences – Faunal Resources*) for additional information.

Sandhill Crane Roosting Area. An agreement with the Alaska Department of Fish and Game (U.S. Army 1986) identified several areas along the Delta River on Donnelly Training Area as important for migrating Sandhill Cranes (*Grus canadensis*). Consultation with the Alaska Department of Fish and

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Game for the military Lands Withdrawal Renewal Environmental Impact Statement identified additional areas along the Delta Creek wash, near the Delta Creek Assault Landing Strip, as important for migrating Sandhill Cranes (Center for Ecological Management on Military Lands Undated). The agreement limited disturbance in designated Sandhill Crane areas each year from 25 April through 15 May and 1 September through 30 September when Sandhill Cranes are present. The Army can conduct military activities in these areas if they first consult with Alaska Department of Fish and Game. The Proposed Action would not affect this special interest area or its current training restrictions. No construction would occur near these roosting areas.

Fire Management

The southeastern corner of Eddy Drop Zone Study Area burned in 1954; and the eastern half burned in 1987. The Eddy Drop Zone Study Area is designated for Full Protection Fire Management (Natural Resources Branch 2001). Due to increased wildfire dangers associated with small arms firing, above natural frequencies of fires would be anticipated in the general downrange areas of these proposed ranges.

Most of the North Texas Range Study Area burned in 1981. Fires in West Donnelly Training Area impact areas from overhead firing to support range operation would not differ from existing fire risks if this alternative were selected.

Fire Risk Assessments

A **risk index rating** provides general information about potential fire behavior at proposed sites. Risk indices depend on site-specific vegetation and topography.

High - During dry and warm weather conditions, wildfires ignite easily, may burn with high intensity, and may have a high potential for rapid fire spread. Typical fire behavior may include crownfires, an active flaming front, and spotting as far as ½ mile ahead of the flaming front.

Moderate - Under dry and warm weather conditions, fires burn with moderate intensity and have a moderate potential for fire spread. Typical fire behavior may include creeping, short runs of active fire in fuel jackpots, and occasional torching.

Low - During dry and warm weather conditions, fires burn with low intensity and have low potential for fire spread. Fire behavior may include smoldering and intermittent creeping.

Fire risk assessments of the proposed projects were made by the USARAK Forester and two Fuels Management Specialists from the Alaska Fire Service, Bureau of Land Management¹. The **Eddy Drop Zone Study Area** has a risk index of **High** due to continuous stringers of black spruce, dwarf black spruce, and mixed hardwood with black spruce. Understory vegetation consists of *Calamagrostis* grass, mosses, and lichens. The fire history and localized weather pattern create an extremely hazardous fire situation. Typically, fires are wind-driven, high intensity, black spruce fires that threaten state lands and private homesteads along the northern boundary.

The **North Texas Range Study Area** has a risk index of **Low - Moderate** due to availability of fuels, fire spread index, and location of existing ranges. Fuels are an alpine tundra fuel type consisting mainly of grasses/sedge willow, alder, short shrubs, and mosses with a few pockets of black spruce. Fire spread can be moderate to high, depending on fire weather indices and weather. Old fire scars to the east and northeast and Delta Creek to the west would serve as a natural fire breaks.

¹ Dan Rees, Environmental Forester, Fort Wainwright; Chris Hays, Fuels Management Specialist, Southern Fire Management Zone, Alaska Fire Service; and Mark Musitano, Fuels Management Specialist, Military Fire Management Zone, Alaska Fire Service.

Jarvis North Fire Mitigation Project

The Jarvis North Fire Mitigation Project (USARAK 2003) was developed specifically to mitigate potential fire risks from range expansion in Eddy Drop Zone Study Area. This project considers fuel types and prevailing climatic factors (particularly high winds). It recognizes that new ranges would significantly increase fire risks in terms of fires moving off military lands, potentially endangering private lands and residences.

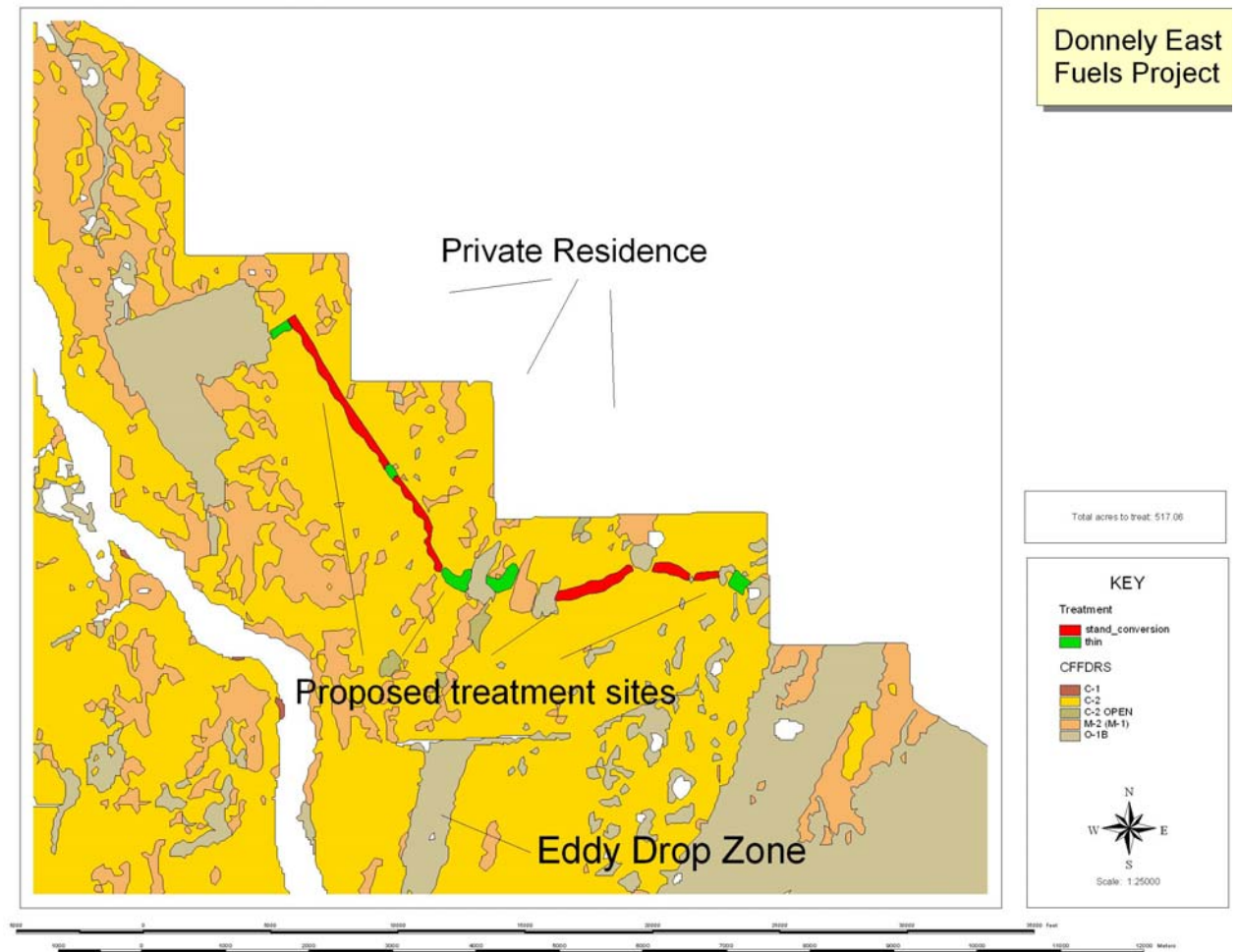
In coordination with the Alaska Fire Service, USARAK proposes to conduct a landscape-scale fire mitigation project. Multiple management techniques would be used to lessen the probability of fires moving off military lands onto private property or fires starting on private property and moving onto military lands. A rapid stand conversion from black spruce to a pure deciduous stand would be conducted over a period of five years, before ranges are in full operation. If a fire were to start in Donnelly East training area, the less volatile deciduous stand would stop or slow the progression of a low intensity fire from moving northward. This fuel break would give firefighters an advantage of suppression if conditions were that of a high intensity crown fire. The project has been organized into three major phases of operation.

Phase 1: FY 2003-04. In the summer field season 2003, thinning crews would start thinning operations in areas delineated on Figure 3.5.2f, approximately 50 acres. This thinning would remove the spruce component from birch and aspen stands. Local seed collection would begin in early fall 2003 and would be used to speed establishment of deciduous trees in spring 2004 and 2005.

Stand conversion would begin in late fall 2003. Large equipment, such as a hydro-ax and shear-blade, would be used to start stand conversion. All coniferous overstory vegetation would be mechanically removed and piled into windrows within the treatment area. Windrows would be burned during the next winter. A burn plan would be developed for windrow burning, and all burn and air quality permits would be acquired. The organic mat would be removed, exposing bare mineral soil after windrows have been burned. During the spring season of 2004 and 2005, collected seed would be spread in areas mechanically treated. Organic material would be mulched and mixed with the soil to enhance seed establishment. Approximately 130 acres would be treated with large equipment. The swath of treated areas will be 50-100 meters wide. A local contractor would be used to accomplish mechanical treatments.

Phase2: FY 2003-04. The housing sub-division would need treatment to specifications outlined by the firewise program. All large volatile vegetation would need to be removed 100 feet from structures, and smaller, less volatile vegetation would need to be cleared 30 feet from structures and limbed to remove ladder fuels. The Bureau of Land Management, Alaska Fire Service is trying to commit funding to this phase of the project. The Bureau of Land Management would need to work with Alaska state agencies and the private homeowner to identify what work would be accomplished and timelines in which to accomplish the project.

Figure 3.5.2f. Jarvis North Fuels Map



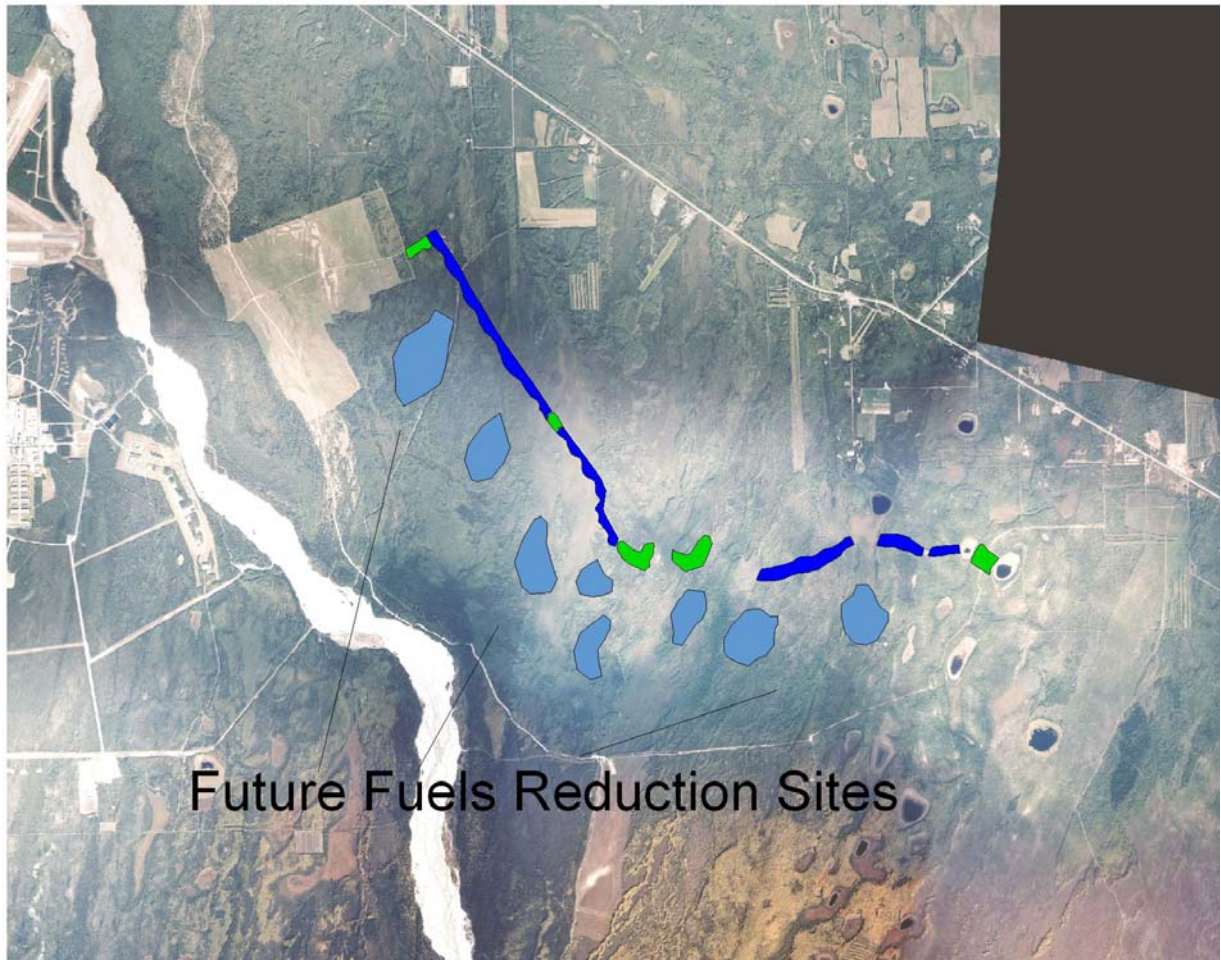
Phase 3: FY 2004 (continuous). Phase 3 would include a detailed assessment of wildland fire fuels just south of the intended fuel break (Figure 3.5.2g). The treatment would entail clearance of the forest in a series of polygons in a multi-year project. This phase would support the completion of two objectives. These breaks in the homogenous black spruce stands would aid in reducing the potential of a high intensity fire as well as serve as habitat improvements. Similar stand conversion techniques would be used in this phase as were used in Phase 1. The success of the project, however, is not dependant on Phase 3. The purpose of Phase 3 is only to decrease the likelihood of high intensity crown fires.

Specific National Environmental Policy Act documentation would be prepared for the fire mitigation project (USARAK 2003). All necessary air quality, burn, and wetland permits would be obtained. Appropriate cultural resources surveys and, if necessary, mitigation would be accomplished.

Additional Wildfire Mitigation Measures

However, under extreme fire danger conditions, implementation of the Jarvis North mitigation plan (USARAK 2003) would not, by itself, guarantee the prevention of the spread of wildfire into adjacent lands.

Figure 3.5.2g. Phase 3, Jarvis North Fire Mitigation Project



A ***detailed pre-attack plan***, which includes the initial attack plan, egress routes for residents of Delta, etc., would be developed before any live fire training exercises are conducted. USARAK would coordinate with the Alaska Fire Service to have an ***Initial Attack Response Team pre-positioned in the Delta area*** during periods of high fire danger when live-fire is scheduled.

Due to the existing road system and old fire scars at the North Texas Range Study Area, a ***prescribed fire rotation*** (1 burn every 3 years) would be used to reduce the existing fuel loading and overall reduce the threat of wildfire, which would increase the ranges' availability for live-fire training exercises.

A ***fire danger rating system*** (described in USARAK Regulation 350-2) would be used to minimize fire risks from range operations at all proposed sites during high fire danger periods.

Alternative 1 – No Action

Floral resources would not be affected by the No Action Alternative.

Alternative 2 – Alternate Sites

General Vegetation

Figure 3.5.2h and Table 3.5.2a indicate vegetation that would be potentially affected if the CACTF and BAX were sited at Donnelly Drop Zone Study Area, based on the Ecological Land Survey (Jorgenson *et al.* 2001) ecotype geographic information system layer.

Land potentially affected by the Donnelly Drop Zone alternative site has primarily low scrub, needleleaf forest, and shrub tussock vegetation. Ranges would more affect the needleleaf forest since range construction sites would need to be on the western side of the study area to avoid Jarvis Creek. Donnelly Drop Zone Study Area has a considerable amount of forest, but not as much as a Proposed Action site (Eddy Drop Zone). Live fire would eventually kill taller vegetation within firing lanes or directly behind targets. Thus, existing vegetation would either be removed during construction or eventually killed on a considerable portion of Donnelly Drop Zone Study Area, particularly that area west of Jarvis Creek where most construction would occur and where most of the forested area occurs. It is desirable to maintain natural ground cover as much as possible for realism and soil and hydrology stabilization. Thus, there would be significant changes to general vegetation at Donnelly Drop Zone Study Area compared to the present.

Listed and/or Rare Plants

USARAK used its Ecosystem Management Analysis program to determine the quality of habitat in the Alternative Sites area (Donnelly Drop Zone Study Area) for each sensitive plant species. This program generated maps based on the Ecological Land Survey (Jorgenson *et al.* 2001) ecotype layer and USARAK-assigned habitat preference values for each species of concern. Types of habitats occupied by these plants were obtained from the floristic inventory (where they were actually found on post), from local expertise, and also based on information given with each species description in three reference books: *Anderson's Flora of Alaska and Adjacent Parts of Canada* (Welsh 1974), *Flora of the Yukon Territory* (Cody 1996), and *Flora of Alaska and Neighboring Territories* (Hulten 1968).

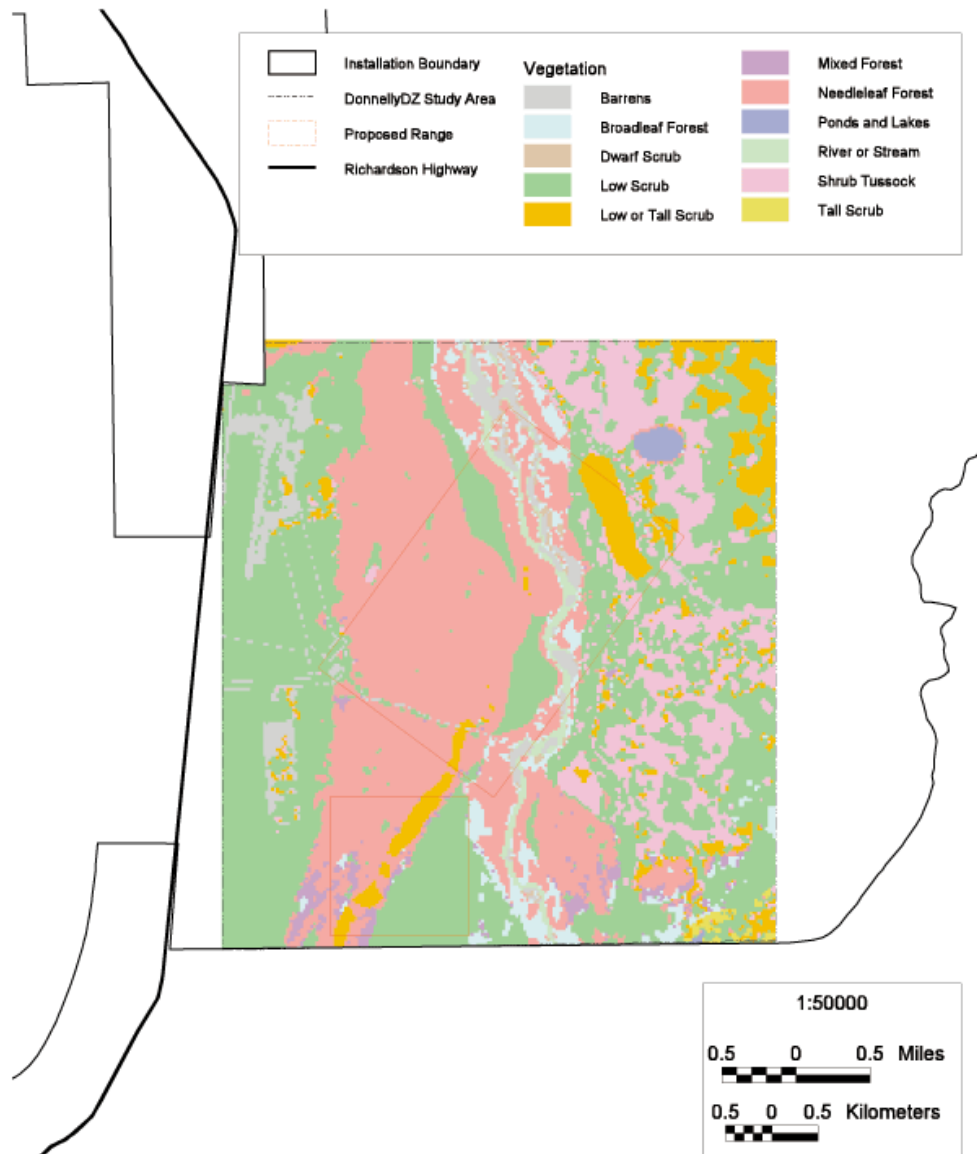
Inventories have documented none of these species within boundaries of the Donnelly Drop Zone Study Area. Only *Carex crawfordii* and *Carex eburnea* have been found within a few miles of the Donnelly Drop Zone Study Area and could exist there based on habitat preferences. Potential habitat exists within Donnelly Drop Zone Study Area for *Artemesia laciniata*, *Carex deweyana*, *Carex synchnocephala*, *Cryptogramma stelleri*, *Dodecatheon pulchellum* ssp. *pauciflorum*, *Draba incerta*, *Phlox hoodii*, *Potamogeton obovatus*, *Salix setchelliana*, *Sisyrinchium montanum*, and *Viola selkirkii*. Surveys for these plants would be made at construction and target sites on the BAX and CACTG to avoid these species, whenever possible.

Wetlands

Figure 3.5.2i indicates wetlands that could be affected by the construction of the ranges within the alternative site. As explained for the Proposed Action, actual impacts would be far less than shown for either the total study area or range footprints.

Wetlands protection is required by Executive Order 11990, *Protection of Wetlands*. Facilities, targetry, access and firing roads/trails, etc. would be sited to avoid construction damage to wetlands and minimize damage to all wetlands. Silt fences and other construction techniques would be used to prevent siltation of wetlands during construction. Construction would remove the least amount of vegetation possible to avoid melting permafrost, which could affect wetlands.

Figure 3.5.2h. Vegetation at Donnelly Drop Zone Study Area

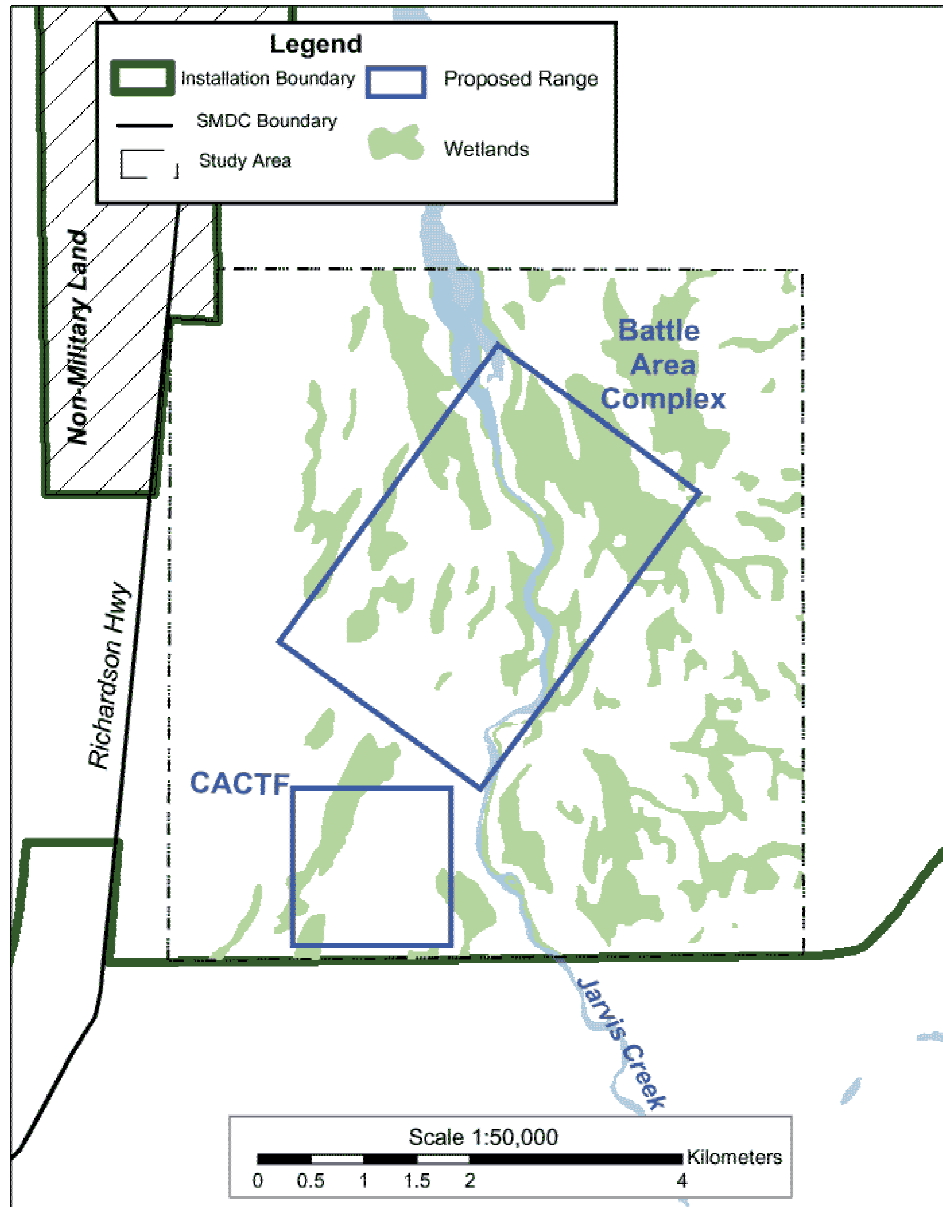


The U.S. Army Corps of Engineers would be consulted to delineate jurisdictional wetlands within the project area. USARAK would obtain Section 404 permits, as required. Mitigation measures for wetlands would be identified in the wetlands permit and implemented by USARAK.

Forest Management

Donnelly Drop Zone Study Area is a medium priority for forest management west of Jarvis Creek and a low priority for forest management east of Jarvis Creek during 2002-2006. The actual Donnelly Drop Zone, however, is high priority due to the need to maintain the drop zone free of trees.

Figure 3.5.2i. Wetlands at Donnelly Drop Zone Study Area



Forest management at Donnelly Drop Zone Study Area could include timber, fuelwood, or Christmas tree sales to accomplish military or ecosystem objectives and/or timber stand improvement, timber management, timber sales, and timber salvage cuts to accomplish habitat improvement or to improve the commercial value of forest tree species (Natural Resources Branch 2001).

There could be a one-time timber sale conducted on Donnelly Drop Zone alternative site to clear timber for range construction since this site is relatively heavily forested west of Jarvis Creek. However, there are significant issues (primarily available markets) that might make this type of removal impracticable.

The current value of any timber removed by construction contractors would be deposited by these contractors in the Army Forestry Reserve Account (Army Regulation 200-3) if it were removed without a timber sale. The contractors would, in effect, purchase the timber from the Army. The current value of

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such timber, based on State of Alaska, Division of Forestry fuelwood timber sales, is approximately \$2.00 per hundred cubic feet of timber. A timber cruise would be conducted to determine the volume and value of affected timber after the final construction footprint is determined.

Special Interest Areas

Donnelly Training Area has areas with special natural features. They harbor sensitive or unique wildlife species or represent unique plant communities (Natural Resources Branch 2001). Figure 3.5.2.e shows special interest areas that include the Donnelly Drop Zone Study Area.

Delta Bison Special Interest Area. The Donnelly Drop Zone Study Area has 8,982.0 acres of Bison Special Interest Area. A 1980 cooperative agreement (Bonito 1980) designated areas as important bison calving and summer range on the Donnelly West Training Area. The 1980 agreement also identified the Donnelly East Training Area as important late summer and early winter range. An agreement in 1986 with the Alaska Department of Fish and Game (U.S. Army 1986) identified bison calving and summer range. USARAK has imposed restrictions to limit disturbance to bison calving areas from 15 April through 15 June, if bison are present. These restrictions would not be affected by the selection of either alternative site for the proposed ranges. In addition, USARAK would not fire on these ranges when bison are present, regardless of time of year.

Fire Management

The eastern third of Donnelly Drop Zone Study Area burned in 1987, and the extreme northern edge of the area burned in 1999. Donnelly Study Area is designated for Full Protection Fire Management (Natural Resources Branch 2001). Due to increased wildfire dangers associated with small arms firing, above natural frequencies of fires would be anticipated in the general downrange areas of these proposed ranges.

Fire Risk Assessments

The **risk index rating**, which provides general information about potential fire behavior, is described in the Proposed Action (above).

The **Donnelly Drop Zone Study Area** has a risk index of **Moderate** due to the availability of fuels, fire spread, and location of existing range. Fuels within the Donnelly Drop Zone Study Area are continuous black spruce with pockets of hardwoods. Understory is generally composed of mosses and lichens. Based on the local fire history and weather patterns, the area is very susceptible to high winds and fire starts. Fires typical in this area have high rates of spreads and intensities. Local fire scars, hardwoods, and road system would serve as natural firebreaks. Based on fuel types, early to mid-summer ignition possibilities could limit the number training days.

If Donnelly Drop Zone Study Area were chosen, buffer zones would be created around existing and proposed structures to protect them from fire. A fire danger rating system (described in USARAK Regulation 350-2) would be used to minimize fire risks from range operations during high fire danger periods.

3.6 Faunal Resources

Additional information regarding faunal resources on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.6.1 Existing Conditions

Donnelly Training Area contains a variety of ecosystems, and most species indigenous to central Alaska can be found on the installation. A list of observed species on Donnelly Training Area is provided in Appendix F of the Integrated Natural Resources Management Plan (Natural Resources Branch 2001).

3.6.1.1 Mammals

Donnelly Training Area is home to the largest variety of game mammals, furbearers, waterfowl, and upland game birds of any military area in the country (Bureau of Land Management and U.S. Army 1994). Game species found on Donnelly Training Area (Game Management Units 20A and 20D) are managed by the Alaska Department of Fish and Game, which sets bag limits and seasons for these species.

Moose (*Alces alces*) are the most visible and economically important wildlife species on Donnelly Training Area. All areas potentially affected by the Proposed Action are identified as moose concentration areas (Center for Ecological Management of Military Lands Undated).

Bison were introduced into the Big Delta-Delta Junction area in 1928 after they were extirpated from the area 450-500 years ago. In 1994 the number of bison in the herd was estimated at 446. Hunting is the main mortality factor. The Delta cows calve (April through July), primarily in the Delta River basin along terraces and gravel bars on or near Texas and Washington ranges. Bison are generally off Donnelly Training Area by late July-early August (Anonymous 1979, Kiker and Fielder 1980). DuBois and Rogers (2000) summarized the history, natural history, and management of the herd in the Delta Bison Management Plan 2000-2005. Section 3.5.2 (*Environmental Consequences, Special Interest Areas*) discusses the location of the Bison Special Interest Area relative to areas potentially affected by the Proposed Action and Alternative Sites Alternative.

The Delta caribou (*Rangifer tarandus*) herd is one of 13 distinct herds in Alaska, and it ranges throughout moist tundra habitat along the Alaska Range. This relatively small herd spends spring and summer on calving grounds in the Trident Glacier foothills and then moves to the west of Donnelly Training Area for the winter (Anonymous 1995b). The Donnelly Dome area is winter habitat for caribou. In 1963 the herd was estimated at 5,000 head that ranged over 3,000 square miles. The herd is now estimated at 4,600 animals and growing.

Large predators include the grizzly bear (*Ursus arctos*), black bear (*Ursus americanus*), wolf (*Canis lupus*), red fox (*Vulpes vulpes*), marten (*Martes americana*), coyote (*Canis latrans*), and wolverine (*Gulo gulo*). Many of these species, in addition to the mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), Arctic hare (*Lepus americanus*), and beaver (*Castor canadensis*), are trapped for fur on Donnelly Training Area. Small mammals confirmed at Donnelly Training Area include the long-tailed vole (*Microtus longicaudus*), Alaska tiny shrew (*Sorex hoyi*), and the yellow-cheeked vole (*Microtus xanthognathus*) (Anderson *et al.* 2000, Natural Resources Branch 2001).

3.6.1.2 Birds

Some common nongame birds observed on the installation include the Alder Flycatcher (*Empidonax alnorum*), American Kestrel (*Falco sparverius*), Hawk Owl (*Surnia ulula*), Great-horned Owl (*Bubo virginianus*), Yellow-rumped Warbler (*Dendroica coronata*), Orange-crowned Warbler (*Vermivora celata*), Common Redpoll (*Acanthis flammea*), Hoary Redpoll (*Carduelis hornemanni*), Dark-eyed Junco (*Junco hyemalis*), Hairy Woodpecker (*Picoides villosus*), Black-backed Woodpecker (*P. arcticus*), Red-tailed Hawk (*Buteo jamaicensis*), Mew Gull (*Larus canus*), Gray Jay (*Perisoreus canadensis*), Common Raven (*Corvus corax*), Black-capped Chickadee (*Poecile atricapillus*),

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American Robin (*Turdus migratorius*), Varied Thrush (*Ixoreus naevius*), Hermit Thrush (*Catharus guttatus*), Swainson's Thrush (*C. ustulatus*), Gray-cheeked Thrush (*C. minimus*), Bohemian Waxwing (*Bombycilla garrulus*), Snow Bunting (*Plectrophenax nivalis*), and the Cliff Swallow (*Petrochelidon pyrrhonota*) (Anonymous 1979).

3.6.1.3 Fish

Fish common in the Tanana River include year-round residents, such as the burbot (*Lota lota*), sheefish (*Stenodus leucichthys nelma*), humpback whitefish (*Coregonus pidschian*), and the longnose sucker (*Catostomus catostomus*); overwintering migrant species, such as grayling (*Thymallus arcticus*), round whitefish (*Prosopium cylindraceum*), and northern pike (*Esox lucius*); and migratory species, such as salmon (*Oncorhynchus* spp.) and Arctic lamprey (*Lampetra japonica*). The Delta River is important to chum salmon (*Oncorhynchus keta*) and coho salmon (*Oncorhynchus kisutch*). Major streams on Donnelly Training Area are generally silt laden and do not support fisheries. A few clear streams flowing into these larger streams provide summer habitat for grayling, but none are important for spawning grayling (Bureau of Land Management and U.S. Army 1994).

3.6.1.4 Reptiles and Amphibians

Wood frogs (*Rana sylvatica*) are the only amphibians in the Alaska Interior, and they are found on Donnelly Training Area. There are no reptiles.

3.6.1.5 Special Status Fauna

Appendix A has a copy of a letter from the U.S. Fish and Wildlife Service confirming that no federally-listed species reside or breed on Army lands in Alaska and that consultation under Section 7(a)(2) of the Endangered Species Act, 16 USC 1536(a)(2) is not required. The American Peregrine Falcon (*Falco peregrinus anatum*) was delisted from endangered species status in 1999. Though it is not known whether they nest on Donnelly Training Area, the installation is within their breeding range. Peregrine Falcons are known to nest within a few miles of the northwestern corner of the Donnelly East Training Area (Ritchie and Rose 1998). Although this raptor has been recently delisted, the U.S. Fish and Wildlife Service requests that USARAK continue consultation on any projects that may hinder their recovery. A federally-listed threatened species in the lower 48, the Bald Eagle (*Haliaeetus leucocephalus*), is locally common.

Two species confirmed on Donnelly Training Area are considered sensitive by the U.S. Forest Service, the Osprey (*Pandion haliaetus*) and Trumpeter Swan (*Cygnus buccinator*). Species are listed when populations and/or habitats have been reduced, restricted, or are vulnerable to resource development, or the species require special management to maintain viable populations (Center for Ecological Management on Military Lands Undated).

Osprey nests are found in snags and living trees near waters with abundant fish populations. Osprey have been identified during Breeding Bird Surveys on Donnelly Training Area (Center for Ecological Management on Military Lands Undated).

Four passerines listed as species of special concern by the State of Alaska have been confirmed on Donnelly Training Area, the Olive-sided Flycatcher (*Contopus borealis*), Gray-cheeked Thrush, Townsend's Warbler (*Dendroica townsendii*), and Blackpoll Warbler (*Dendroica striata*). There are no legal requirements for managing these species. These migratory birds nest mainly in coniferous forests of Alaska. The Olive-sided Flycatcher is also found in open woodlands, forest burns, boreal bogs, and muskegs. The Gray-cheeked Thrush nests in conifers and dense stands of alder or willow (Center for Ecological Management on Military Lands Undated).

The U.S. Fish and Wildlife Service, Office of Migratory Bird Management maintains a list of *Migratory Nongame Birds of Management Concern in the United States*. Species listed for Alaska that may occur on Donnelly Training Area are the Trumpeter Swan, Common Loon (*Gavia immer*), Northern Harrier (*Circus cyaneus*), Northern Goshawk (*Accipiter gentilis*), Olive-sided Flycatcher, Alder Flycatcher, Gray-cheeked Thrush, and Blackpoll Warbler.

Anderson *et al.* (2000) conducted landbird surveys in 1998 on Donnelly Training Area. Nine of 10 birds listed as priority species by the Western Working Group, Partners in Flight (in 1998) were found. Eighteen species confirmed on Donnelly Training Area are included on the Boreal Partners in Flight Working Group as target or priority species for monitoring because of declines in populations noted across the Americas. There are no legal requirements to manage these species although all migratory bird species are afforded some protection under the Migratory Bird Treaty Act.

3.6.2 Environmental Consequences

Proposed Action

Eddy Drop Zone Study Area is totally within moose concentration areas (Center for Ecological Management of Military Lands Undated). The North Texas Range Study Area is totally within a moose fall/winter/spring concentration area and partially within a summer concentration area (Center for Ecological Management of Military Lands Undated). Moose habitat would be enhanced by the addition of small arms ranges due to actions to create and maintain low vegetation on firing ranges, particularly on Eddy Drop Zone Study Area since relatively large forested areas would be affected.

Section 3.5.2 (*Environmental Consequences, Special Interest Areas*) discusses the location of the Bison Special Interest Area in areas potentially affected by the Proposed Action. An agreement in 1986 with the Alaska Department of Fish and Game (U.S. Army 1986) identified bison calving and summer range. USARAK has imposed restrictions to limit disturbance to bison calving areas from 15 April through 15 June, if bison are present. These restrictions would not be affected by the Proposed Action. The Delta Fish and Game Advisory Committee requested that USARAK consider not implementing the Proposed Action at any location on Donnelly Training Area (Appendix B). Bison habitat could be enhanced by the Proposed Action since areas around construction sites (facilities and targets) and in some cases in front of targets would be planted and maintained in native grasses. There is also the potential for some disturbance to bison from range operation, but there is no evidence that this would be significant. In addition, USARAK would allow no firing on these new ranges when bison are present, regardless of the time of year.

The southern portion of the North Texas Range Study Area has been classified as sensitive grizzly bear range by the Alaska Department of Fish and Game (Center for Ecological Management of Military Lands Undated). The North Texas Range Study Area also includes a small portion of the Sandhill Crane Special Interest Area, but this would be unaffected by the Proposed Action as ranges would be sited to avoid the Delta River floodplain.

There are no known significant effects of construction or operation of any proposed ranges on populations of mammals, birds, fish, or amphibians.

Alternative 1 – No Action

Faunal resources would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

The Donnelly Drop Zone Study Area is totally within moose concentration areas. Moose habitat could be enhanced by the addition of small arms ranges due to actions to create and maintain low vegetation on firing ranges, particularly on Donnelly Drop Zone Study Area since relatively large forested areas would be affected.

Section 3.5.2 (*Environmental Consequences, Special Interest Areas*) discusses the location of the Bison Special Interest Area in areas potentially affected by the Proposed Action and its alternatives. An agreement in 1986 with the Alaska Department of Fish and Game (U.S. Army 1986) identified bison calving and summer range. USARAK has imposed restrictions to limit disturbance to bison calving areas from 15 April through 15 June, if bison are present. These restrictions would not be affected by the selection of either alternative site for the proposed ranges. The Delta Fish and Game Advisory Committee requested that USARAK consider not implementing the Proposed Action at any location on Donnelly Training Area, including alternative sites (Appendix B). Bison habitat could be enhanced by the addition of small arms ranges since areas around construction sites (facilities and targets) and in some cases in front of targets would be planted and maintained in native grasses. There is also the potential for some disturbance to bison from range operation, but there is no evidence that this would be significant. In addition, USARAK would allow no firing on these new ranges when bison are present, regardless of the time of year.

The Donnelly Drop Zone Study Area has been classified as sensitive grizzly bear range by the Alaska Department of Fish and Game (Center for Ecological Management of Military Lands Undated). There are no known significant effects of construction or operation of any proposed ranges on either alternative study area on populations of mammals, birds, fish, or amphibians.

3.7 Floodplains

3.7.1 Existing Conditions

Significant floodplains on Donnelly Training Area near the three study areas are associated with the Delta River and Jarvis Creek.

3.7.2 Environmental Consequences

Proposed Action

The Jarvis Creek floodplain is on the extreme western boundary of the Eddy Drop Zone Study Area. During several weeks of some years, access to both proposed ranges could be inaccessible for normal use due to flooding of access roads. Access roads would be upgraded to reduce this access problem. Ranges would be sited to avoid any construction or maneuver within this floodplain. There is a general runoff over the area proposed for these ranges each spring. Range facilities and targetry (including wiring) would be designed to withstand standing water in lower areas. Ranges would be sited to avoid construction within this floodplain.

The North Texas Range Study Area includes a small portion of the Delta River floodplain. The CTR would be sited on a natural bench a minimum of 100-150 feet above the floodplain to avoid any construction or maneuver within this floodplain.

Alternative 1 – No Action

Floodplains would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

The Donnelly Drop Zone Study Area is bisected by the Jarvis Creek and Ober Creek floodplains. Ranges would be sited to avoid any construction within this floodplain. Troops would maneuver through this floodplain during the execution of the Platoon Battle Course portion of the range.

3.8 Land Use

Additional information regarding land use on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.8.1 Existing Conditions

3.8.1.1 Land Use and the Military Mission

Military Use

Military land use on Donnelly Training Area can be separated into two broad groups: urban areas and training areas. Urban areas include most developed areas on the installation. Training areas also can be separated into two broad categories - maneuver training and weapons training.

Maneuver training is conducted primarily in training areas. A training area is space for ground and air combat forces to practice movements and tactics as specified in the unit's Army Training and Evaluation Program. Different unit types may work in support of one another (combined arms), or the unit may operate on its own to practice a specific set of Army Training and Evaluation Program tasks. Included in these areas are bivouac sites, base camps, drop zones, artillery and mortar firing points, and other miscellaneous training areas. Each training area is managed and scheduled by Range Control.

Weapons training also has land-based requirements. Weapons training occurs primarily on firing ranges, and munitions from firing ranges land in surface danger zones or impact areas. Military land use categories on Donnelly Training Area are shown in Figure 3-1 with descriptions for each military land use category listed in Table 3-3 of the Integrated Natural Resources Management Plan (Natural Resources Branch 2001).

Natural Resources Management Use

There are a number of natural resources management land uses on Donnelly Training Area. Integrated Training Area Management, forest management, fish and wildlife management, habitat management, wetlands management, watershed management, fire management, endangered species management, special interest areas management, pest management, cultural resources management and minerals management all have spatial components and land based requirements. These land uses and their associated programs and projects are discussed in detail in the Integrated Natural Resources Management Plan (Natural Resources Branch 2001).

Recreation and Subsistence Use

Hunting, trapping, fishing, off-road vehicle use, skiing, boating, and cutting firewood all have land-based requirements. All potentially affected study areas are open to snow machines and off-road vehicles, except for wetlands, which are closed to off-road vehicles (except for snow machines in winter). A map (Figure 6-1) showing areas open for various recreation and subsistence activities is found in Section 6.2.4 of the Integrated Natural Resources Management Plan (Natural Resources Branch 2001).

Commercial Use

Commercial timber sales is the primary potential commercial use. Maps showing potential areas for commercial timber sales are found in Section 5.2.4 of the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Also, see Section 3.5.1.5, *Forest Resources*, above.

Rights-of-way, Easements, and Leases

There are a number of rights-of-way, easements, and leases on Donnelly Training Area. The Alaska pipeline, the Richardson Highway, various power lines, etc. have land-based requirements.

3.8.1.2 Surrounding Land Use

Donnelly Training Area is surrounded primarily by State land. The Bureau of Land Management manages a tract of federal land to the south of Donnelly West Training Area. State lands to the north of Donnelly Training Area are managed for forestry, fish and wildlife habitat, public recreation, and watershed maintenance. Up to 60,000 acres may be designated for agricultural disposal. An additional 1,000 acres are designated for future settlement. Adjacent lands are traditional Tribal hunting lands, which continue to be a focus of subsistence hunting by neighboring Native communities.

Privately-owned land exists along the Alaska highway to the north of Donnelly Training Area. A checkerboard of private/state/Bureau of Land Management lands is in the “keyhole” along Richardson Highway.

Adjacent to the eastern boundary of Donnelly Training Area, the State has designated bison habitat to provide winter range and alter seasonal movement to minimize damage to area agricultural lands. State lands along southern boundaries of Donnelly Training Area are managed for public recreation, mineral exploration, and fish and wildlife habitat. State lands adjacent to the western boundary of Donnelly Training Area are managed for fish and wildlife habitat, forestry, and mineral exploration. State lands located on either side of the Richardson Highway (commonly known as the keyhole) are managed for public recreation and designated for settlement.

3.8.2 Environmental Consequences

Proposed Action

All land for siting proposed ranges within the Eddy Drop Zone Study Area is classified as Training Areas, Maneuver Training Areas. This broad classification is further divided into Maneuver Areas except for Drop Zones. Areas where any overhead artillery or mortar firing or close air support would occur are classified as Training Areas, Maneuver Training Areas, Maneuver Areas (Natural Resources Branch 2001).

Implementation of the Proposed Action at Eddy Drop Zone Study Area would maintain lands within the Training Areas category, but subcategories would shift. In general, all project sites would become Weapons Training. Within the Weapons Training category, range facilities would be classified as Firing Ranges, and downrange portions of ranges would become Non-Duddled Impact Areas.

All land for siting proposed ranges within the North Texas Range Study Area is classified as Training Areas, Maneuver Training Areas. This broad classification is further divided into Maneuver Areas except for Firing Points. Impact areas west of the Delta River for the indirect and direct artillery firing and close air support to support the proposed ranges are classified as Training Areas, Weapons Training, Duddled Impact Areas (Natural Resources Branch 2001).

Implementation of the Proposed Action at North Texas Range Study Area would maintain lands within the Training Areas category, but subcategories would shift. In general, all project sites would become Weapons Training. Within the Weapons Training category, range facilities would be classified as Firing Ranges, and downrange portions of ranges would become Non-Duddled Impact Areas. The Duddled Impact Areas west of the Delta River would remain the same. The North Texas Range Study Area is the only one of the three sites that can support use of artillery, mortars, and close air support.

Since lands proposed for use for these projects would not close any areas with exception of times ranges are in use, land use for natural resources management, recreation, and/or subsistence would only be affected in terms of timing. Such use would need to be coordinated with ongoing use of the proposed ranges, consistent with current practices. Both Eddy Drop Zone and North Texas Range study areas are open for public use (with exception of the small portion across the Delta River of the North Texas Range site) (Center for Ecological Management of Military Lands Undated), and this would not change.

There could be a one-time timber sale conducted on Eddy Drop Zone Study Area to clear timber for range construction. However, there are significant issues (primarily available markets) that might make this type of removal impracticable.

There would be no impacts on rights-of-way, easements, or leases. Surrounding land use would not be affected.

Alternative 1 – No Action

Land use on Donnelly Training Area would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

All land for siting proposed ranges within the Donnelly Drop Zone Study Area is classified as Training Areas, Maneuver Training Areas. This broad classification is further divided into Maneuver Areas except for Drop Zones (Natural Resources Branch 2001).

Implementation of the Donnelly Drop Zone alternative site would maintain lands within the Training Areas category, but subcategories would shift. In general, all project sites would become Weapons Training. Within the Weapons Training category, range facilities would be classified as Firing Ranges, and downrange portions of ranges would become Non-Duddled Impact Areas.

Land use for natural resources management, recreation, and/or subsistence would only be affected in terms of timing since siting ranges would not close any of Donnelly Drop Zone Study Area with exception of times when ranges are in use. Such use would need to be coordinated with ongoing use of the proposed ranges, consistent with current practices. Donnelly Drop Zone Study Area is open for public use (Center for Ecological Management of Military Lands Undated), and this would not change.

There could be a one-time timber sale conducted on Donnelly Drop Zone Study Area to clear timber for range construction. However, there are significant issues (primarily available markets) that might make this type of removal impracticable.

There would be no impacts on rights-of-way, easements, or leases. Surrounding land use would not be affected.

3.9 Cultural Resources

3.9.1 Existing Conditions

In 2001 U.S. Army Alaska implemented the *Integrated Cultural Resources Management Plan, 2001-2005, Fort Wainwright and Fort Greely* (Lewis *et al.* 2001). This plan contains what is known concerning cultural resources on Donnelly Training Area. The remainder of this section, unless referenced otherwise, is condensed from that document.

There have been 11 archaeological investigations on Fort Greely and Donnelly Training Area that have identified 96 sites to date. These investigations have resulted in only 2,211 acres (less than 1%) of the entire Fort Greely and Donnelly Training Area receiving some level of archaeological survey. Six surveys were small clearance surveys, which resulted in the discovery of five sites. Frederick West conducted the first regional survey of the foothills of the Alaska Range in the 1960s (West 1967). His survey in the Donnelly Training Area included the Donnelly and Delta moraine topography. He located 20 sites that form the proposed Donnelly Ridge Archaeological District. This collection of sites has played a significant role in defining the Denali Complex of the American Paleoarctic Tradition.

In 1978 a reconnaissance-level survey was conducted in various areas of Fort Greely and Donnelly Training Area, resulting in the discovery of 60 sites (Holmes 1979). A 1979 survey located four sites (Bacon and Holmes 1980). Northern Land Use Research, Inc. conducted limited archaeological surveys in various areas of Donnelly Training Area, resulting in the identification of 16 additional sites (Higgs *et al.* 1999). These sites are all located in one of three physiographic settings: high points, bluffs or terraces overlooking a major river or site drainage, or lake margins. There is an inherent bias in these findings, however, as archaeological investigations have frequently focused on high probability settings.

Three individual sites and the proposed Donnelly Ridge Archaeological District (with 20 sites) have been determined eligible for inclusion in the National Register of Historic Places. Twenty-nine sites have been determined not eligible for listing. Remaining sites have not been evaluated, and thus currently lack adequate information to determine eligibility.

Based on the limited archaeological information available and ongoing predictive modeling for Donnelly Training Area, it appears that the northern foothills of the Alaska Range west of Delta River and the entire area east of the river may have high potential for containing archaeological sites. Remaining areas appear to have a moderate to low potential for containing sites.

Donnelly Training Area land has probably supported human populations for 10,000-12,000 years. Because it was ice-free during the Wisconsin glaciation, interior Alaska contains the oldest verifiable prehistoric remains in the state. It also has significance for the understanding of the peopling of the New World.

The oldest radiocarbon date for any item found on the post is 8,555 (\pm 380) years Before Present (BP). Some undated material resembles artifacts dating back to 12,000 BP. The prehistory of interior Alaska has recently been divided into five chronological periods along environmental and cultural criteria (Holmes 2000) -- Beringian Period (>11,000 BP), Transitional Period (11,000 to 8,500 BP), Early Taiga Period (8,500 to 5,000 BP), Middle Taiga Period (5,000 to ca. 2,500 BP), and Late Taiga Period (ca. 2,500 BP to present). The limited archaeological record on Donnelly Training Area represents all of these recognized periods.

Indirect European contact with Native people began in the 1830s and 1840s, with direct trade beginning in the 1860s. During the 1860s, prospectors and explorers appeared in the interior of Alaska, and the discovery of gold in 1902 resulted in a great influx of Euro-American settlers, causing profound effects to the lifestyle of Native communities.

There are three historic sites and a historic trail on Donnelly Training Area: Sullivan Roadhouse Site; Gordon's Roadhouse, which is in ruins; Ptarmigan Creek Cabin, which has been determined ineligible for inclusion in the National Register of Historic Places; and parts of the Washburn-Fairbanks winter sled trail, which was serviced by the two roadhouses. In 1996 the Sullivan Roadhouse was moved to Delta Junction. No historic resources associated with early mining (1898-1942) that have been or may be identified on Donnelly Training Area have the potential of being eligible for inclusion in the National Register of Historic Places (Neely and Sackett 2001).

3.9.2 Environmental Consequences

Proposed Action

In July 2002 archaeological survey crews, comprised of archaeologists employed by the Center for Environmental Management of Military Lands, Colorado State University, conducted a pedestrian survey of proposed range construction areas. Surveys encompassed a larger area than the proposed range construction footprint to ensure coverage of areas that may incur secondary impacts during construction or use. No archaeological resources or historic sites were identified within the proposed Combined Arms Collective Training Facility. One site was identified within the Collective Training Range footprint but was determined ineligible for listing in the National Register (see Appendix C). Five prehistoric archaeological sites were identified within the proposed Battle Area Complex training range and were evaluated for eligibility to the National Register of Historic Places. One site was determined to be eligible for listing in the National Register; however, this site is outside the proposed construction footprint and will be avoided by proposed project activity under all alternatives.

Appendix C has a copy of letters from the Alaska State Historic Preservation Officer concurring with USARAK's findings that no historic properties would be affected by the Proposed Action. The consultation meets USARAK obligations under Section 106, National Historic Preservation Act of 1966 (as amended, Public Law 89-665; 16 USC 470 *et seq.*).

Alternative 1 – No Action

Cultural resources would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

Surveys for cultural resources in Donnelly Drop Zone Study Area conducted in 2002 confirmed that the proposed ranges could be constructed with no effect to historic properties.

3.10 Hazardous Waste/Materials

3.10.1 Existing Conditions

Donnelly Training Area is not listed on the Environmental Protection Agency's National Priorities List under the Comprehensive Environmental Response, Compensation and Liability Act of 1980. There are no known significant hazardous waste/materials on training lands at Donnelly Training Area.

3.10.2 Environmental Consequences

Proposed Action

There are no known hazardous waste sites on proposed project sites. Any discovery of hazardous material contamination would require appropriate regulatory coordination and compliance. Construction digging has the potential to expose contaminated soil from historic use of sites. Any discovered contaminated soils during excavation would be remediated using methods agreed upon by USARAK, Environmental Protection Agency, and the Alaska Department of Environmental Conservation.

Neither soil nor groundwater would be removed from construction sites without written approval from an authorized USARAK representative. All operations involving hazardous waste would be accomplished in accordance with USARAK Pamphlet 200-1, *Environmental Quality: Hazardous Waste, Used Oil, and Hazardous Materials Management*.

Alternative 1 – No Action

No hazardous wastes would be generated under the No Action Alternative beyond those small quantities already being generated by existing military activities.

Alternative 2 – Alternative Sites

There are no known hazardous waste sites in Donnelly Drop Zone Study Area. Any discovery of hazardous material contamination would require appropriate regulatory coordination and compliance. Construction digging has the potential to expose contaminated soil from historic use of sites. Any discovered contaminated soils during excavation would be remediated using methods agreed upon by USARAK, Environmental Protection Agency, and the Alaska Department of Environmental Conservation.

Neither soil nor groundwater would be removed from construction sites without written approval from an authorized USARAK representative. All operations involving hazardous waste would be accomplished in accordance with USARAK Pamphlet 200-1, *Environmental Quality: Hazardous Waste, Used Oil, and Hazardous Materials Management*.

3.11 Outdoor Recreation

Additional information regarding outdoor recreation on Donnelly Training Area is within the Integrated Natural Resources Management Plan (Natural Resources Branch 2001). Unless stated otherwise, below information is from that source.

3.11.1 Existing Conditions

USARAK strives to maintain an interactive relationship with local communities by providing recreational opportunities to the public. Donnelly Training Area is a large, relatively undeveloped open space. This open space and the outdoor recreation opportunities associated with it are perhaps Donnelly Training Area's best attributes in terms of community quality of life.

Hunting, Trapping and Fishing: Hunting and trapping occurs on Donnelly Training Area in areas that are open to public access and other recreational uses. Sixteen lakes are stocked by the Alaska Department of Fish and Game with grayling, rainbow trout, Arctic char and king salmon; 15 lakes are along Meadows Road, Windy Ridge Road, and trails to the west of the Richardson Highway. Most lakes and ponds on Donnelly Training Area are too shallow or oxygen deficient in the winter to support fish. Annual fishing visits averages about 1,400 angler-use days (Bureau of Land Management and U.S. Army 1994). The Delta River and Jarvis Creek also flow through post and may contain sport fish, such as grayling, burbot, northern pike, and migrating silver and chum salmon.

Civilians and military personnel who desire to hunt, fish, or trap on Donnelly Training Area lands are required to obtain a USARAK hunting, trapping and fishing permit. Persons are responsible for obtaining state hunting, fishing, or trapping licenses. The Alaska Department of Fish and Game issues various regulations (trapping, migratory bird hunting, sport fish, and hunting) for hunters, anglers, and trappers in Alaska. *AR 200-3, Natural Resources - Land Forest and Wildlife Management*, and USARAK Regulation 200-3, *Enforcement of Hunting, Trapping and Fishing on Army Lands in Alaska*, are the primary means of establishing controls on hunting, trapping, and fishing as well as other natural resources-related activities on Donnelly Training Area. Hunting, trapping, and fishing opportunities are only closed during range operations or other military activities that are incompatible with outdoor recreation. There is an issue with trash being left on Donnelly Training Area, which the Army has to remove.

Off-Road Recreational Vehicles: Off-road vehicles on Donnelly Training Area include airboats, jet boats, snowmachines, dirt bikes, three and four-wheelers, and four-wheel drive vehicles. Off-road vehicles are used in association with many activities in the Alaskan Interior. These vehicles are primarily used to access hunting, fishing, and trapping areas; for recreational riding; and for other activities.

Other Recreational Activities: Other recreational activities include picnicking, camping, hiking, cross-country skiing, snowshoeing, dog mushing, boating, rafting, and berry picking.

Wildlife Viewing: USARAK provides wildlife viewing opportunities for soldiers, civilians, Alaska residents, and visitors. Programs include wildlife viewing platforms, nature trails, interpretive signs, brochures, facilities, audio visual productions, public presentations, and cooperative publications with local, state, and federal agencies.

3.11.2 Environmental Consequences

Proposed Action

The Eddy Drop Zone Study Area has numerous lakes, but none are managed for fisheries. The North Texas Range Study Area has numerous lakes, some of which are intensively managed for fisheries. Footprints for the CTR could include J and Ghost lakes, both of which are stocked and fished; however, the CTR would be sited to avoid construction footprints in these lakes.

Ranges and their small arms impact areas (including fishing lakes) would only be closed to outdoor recreation during range operations or other military activities that are incompatible with outdoor recreation, the same as the existing policy, Section 3.11.1.

Alternative 1 – No Action

Outdoor recreation would not be affected by the No Action Alternative.

Alternative 2 – Alternative Sites

The Donnelly Drop Zone Study Area has numerous lakes, but none are managed for fisheries. Ranges and their small arms impact areas would only be closed to outdoor recreation during range operations or other military activities that are incompatible with outdoor recreation, the same as the existing policy, Section 3.11.1.

3.12 Socio-economic Conditions

3.12.1 Existing Conditions

As of October 31, 2001 there were 13 military personnel stationed at Fort Greely and Donnelly Training Area; these personnel had no family members. An additional 166 retirees with 216 family members were considered part of the Fort Greely and Donnelly Training Area demographics. USARAK employed 85 Department of Defense civilians and 15 non-Department of Defense civilians. Total payroll for Fiscal Year 01 was \$12,021,683, and other Fort Greely and Donnelly Training Area expenditures amounted to \$18,515,057 for that year.²

3.12.2 Environmental Consequences

Proposed Action

The Proposed Action would result in about \$72 million for design and construction of proposed facilities. Construction could temporarily increase population and employment levels, particularly in warmer months when it is common practice for construction workers to temporarily move to Alaska. Operation of the facilities would not significantly permanently impact demographic numbers or characteristics since such operation does not significantly impact military or civilian employment at Donnelly Training Area. The Proposed Action would not affect public facilities, utilities, transportation systems, or services.

Alternative 1 - No Action

The No Action Alternative would not affect population demographics, public facilities, utilities, transportation systems, or services.

Alternative 2 – Alternative Sites

Use of alternative sites would create a short-term socio-economic impact similar to the Proposed Action.

3.13 Visual Resources/Aesthetics

3.13.1 Existing Conditions

Vegetation and other conditions that comprise visual resources/aesthetics at Donnelly Training Area are described in other sections of this environmental assessment and in greater detail in the Integrated Natural Resources Management Plan (Natural Resources Branch 2001).

3.13.2 Environmental Consequences

Proposed Action

The Proposed Action would be confined to Donnelly Training Area. Primary uses of the Eddy Drop Zone Study Area are military maneuver and related uses that support military training. Proposed range projects would be consistent with this use. Primary uses of the North Texas Study Area are military maneuver, live-fire ranges, and other ranges that support military training. Proposed range projects would be generally consistent with this use.

Lands proposed for the proposed ranges are relatively natural ecosystems. There is significant tree cover in Eddy Drop Zone Study Area but very limited tall tree cover in North Texas Range Study Area. Trees that could be destroyed by live-fire, creates safety issues, or are located on construction footprints

² USARAK Command Information Card, FY 02, Management Service Division, DCSRM, Fort Richardson, AK.

would be replaced with lower growing vegetation, and range support facilities (parking areas, control towers, ammo breakdown facilities, access roads, targets, etc.) would somewhat detract from the natural environment. There would be some short-term, construction-oriented loss in visual resources at the sites, but site improvements associated with the projects and natural revegetation would partially mitigate this.

Alternative 1 - No Action

The No Action Alternative would not affect visual resources or aesthetics.

Alternative 2 – Alternative Sites

Both alternative sites are confined to Donnelly Training Area. Primary uses of Donnelly Drop Zone Study area are military maneuver and related uses that support military training.

The Donnelly Drop Zone Study Area has relatively natural ecosystems with significant tree cover. Trees that could be destroyed by live-fire, creates safety issues, or are located on construction footprints would be replaced with lower growing vegetation, and range support facilities (parking areas, control towers, ammo breakdown facilities, access roads, targets, etc.) would somewhat detract from the natural environment. There would be some short-term, construction-oriented loss in visual resources at the sites, but site improvements associated with the projects and natural revegetation would partially mitigate this.

3.14 Cumulative Impacts

A cumulative effect is defined as an effect on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place locally or regionally over a period of time.

Proposed Action

Vegetation impacts would be cumulative more so at Eddy Drop Zone Study Area than at North Texas Range Study Area due to the predominance of forest at Eddy Drop Zone Study Area. Taller forms of natural vegetation (trees and shrubs) would be replaced by a lower growing form of natural vegetation (grasses and low growing woody species). Soil integrity would be damaged at facility sites, and this loss would remain indefinitely. Regardless of the efficiency of operating the proposed ranges, there would be slightly more energy required by Donnelly Training Area, which would result in slightly more emissions (probably undetectable) from the energy plant.

Alternative 1 – No Action

There are no cumulative impacts associated with the No Action Alternative.

Alternative 2 – Alternative Sites

Vegetation impacts would be cumulative. Taller forms of natural vegetation (trees and shrubs) would be replaced by a lower growing form of natural vegetation (grasses and low growing woody species). Regardless of the efficiency of operating the proposed ranges, there would be slightly more energy required by Donnelly Training Area, which would result in slightly more emissions (probably undetectable) from the energy plant.

3.15 Past, Present, and Reasonably Foreseeable Future Actions Considered on a Cumulative Basis

3.15.1 Range Development

The Donnelly Training Area range areas, by definition, are the preferred location for the development of facilities that directly support field-oriented training. Such facilities include firing and nonfiring ranges with support facilities, hardened assembly areas, improved roads, drop zones, combat landing strips, firing points, communications and electric service lines, and similar facilities. Modernization and facilities upgrade requirements will continue over time. Thus, range upgrades/additions/demolitions will continue on a regular basis, as they have in the past. Due to rapidly changing technology, military tactics and strategy, and world events affecting military activities, it is difficult to predict some of these changes beyond a few years.

The Proposed Action is another action in this process. The two projects continue the development of the Donnelly Training Area range area, which is a cumulative impact. However, this development is planned within the *Range and Training Land Program, Development Plan* (Nakata Planning Group, LLC 2001), avoids significant environmental impacts, has adequate mitigation, and is required to support the USARAK military mission at Donnelly Training Area. Military planners recognize that range development, in terms of total acreage, results in a loss of maneuver land, which is critical to military training. Thus, there will continue to be efforts to balance range development with the need for undeveloped lands with natural environments for realistic maneuver training.

3.15.2 Military Mission Evolution

The USARAK military mission can be expected to continue to evolve, in some cases relatively dramatically, as the U.S. Armed Forces evolve in terms of military units and equipment, and tactics/strategies change to meet changing threats to U.S. security. Such changes are expected to continue in the future, as they have done so in the past. However, the nature of these changes with respect to changes at Donnelly Training Area is difficult to predict due to rapidly changing technology, military tactics and strategy, and world events affecting military activities.

The proposed projects are examples of changes in military training requirements that would result in additional facilities at Donnelly Training Area. Proposed ranges support coordinated live-fire training needed to maximize troop survivability on worldwide battlefields. The BAX and CACTF would have targetry and data collection capabilities that were not possible a decade ago. Proposed projects are planned, avoid significant environmental impacts, have adequate mitigation, and are required to support the USARAK military mission at Donnelly Training Area.

4. SUMMARY OF EFFECTS AND CONCLUSIONS

4.1 Unavoidable Adverse Effects Should the Proposed Action Be Implemented

Some adverse effects due to construction cannot be avoided if the Proposed Action is implemented. Disturbance of soils and vegetation would occur. Vegetation impacts would be minimal with regard to vegetation compared to alternative sites; soils impacts would be confined to construction sites. There is no evidence to suggest significant impacts to wildlife in the area of the Proposed Action. There could be some effects to wetlands, but any such impacts would be within limits of Section 404 permits, which would be obtained as needed. Short-term noise and air quality degradation would occur during construction, but neither would be significant or long-term. There is a potential for the generation or discovery of hazardous waste or materials; such waste or materials would be disposed of or remediated according to compliance requirements.

The below table summarizes potential effects for each alternative. Environmental effects would not be significant within the larger geographic and temporal context in which they would take place.

Table 4.1. Summary of Potential Environmental Consequences

Resource Area	Environmental Consequence*		
	No Action	Proposed Action	Alternative Sites
Geology	No effect	No effect	No effect
Soils	No effect	Negative on construction sites	Negative on construction sites
Water Resources	No effect	No effect	No effect
Noise Environment	No effect	Slightly negative during construction; negative during range operation but compatible with land uses.	Slightly negative during construction; negative during range operation but compatible with land uses.
Air Quality	No effect	Slightly negative during construction	Slightly negative during construction
Floral Resources	No effect	Slightly negative, particularly for trees at Eddy Drop Zone Study Area	Slightly negative, particularly for trees
Wetlands	No effect	Slightly negative	Slightly negative
Faunal Resources	No effect	No known significant effects	No known significant effects
Listed or Sensitive Species	No effect	No known effects	No known effects
Floodplains	No effect	No effect	Possibly slightly negative
Land Use	No effect	No effect in terms of general classification (military training) but changes in classification from maneuver land to ranges and associated non-dudged impact areas	No effect in terms of general classification (military training) but changes in classification from maneuver land to ranges and associated non-dudged impact areas
Cultural Resources	No effect	No effect	No effect
Hazardous Waste/Materials	No effect	No effect	No effect

E

Resource Area	Environmental Consequence*		
	No Action	Proposed Action	Alternative Sites
Outdoor Recreation	No effect	Negative effect only during range use	Negative effect only during range use
Socioeconomic Environment	No effect	Beneficial during construction	Beneficial during construction
Visual Resources/Aesthetics	No effect	Negative for all sites during construction; negative after construction, particularly for Eddy Drop Zone Study Area	Negative for all sites during construction; negative after construction,
Environmental Justice	No effect	No effect	No effect
Protection of Children	No effect	No effect	No effect
Cumulative Impacts	No effect	Slightly negative for vegetation and soils	Slightly negative for vegetation and soils

* No effect: Actions have no known demonstrated or perceptible impacts

Beneficial: Actions have apparent beneficial effects

Negative: Actions have apparent negative effects

4.2 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would involve no irreversible or irretrievable commitment of resources other than the consumption of various expendable materials, supplies, and equipment associated with construction.

4.3 Conclusions

The Proposed Action to construct a Battle Area Complex, Combined Arms Collective Training Facility, and Collective Training Range at Donnelly Training Area, Alaska was analyzed by comparing potential environmental consequences against existing conditions. Findings indicate that implementation of the Proposed Action would result in either no significant adverse environmental consequences or temporary and relatively minor negative effects on each environmental area, except for socio-economic impacts, which would be temporarily beneficial, and potential habitat improvements for moose and bison. The affected environment would not be significantly or adversely impacted by proceeding with the Proposed Action. No significant cumulative effects would be expected.

Based on this environmental assessment, implementation of the Proposed Action (*i.e.*, range expansion) would have no significant negative environmental or socioeconomic effects. The Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, preparation of an environmental impact statement is not required, and preparation of a Finding of No Significant Impact is appropriate.

5. PERSONS CONTACTED - ARMY

George Alexion, Installation Range Officer, Directorate of Plans, Training, Security, and Mobilization
Jeff Andrews, GIS Lab Coordinator, Environmental, Public Works
Ellen Clark, Donnelly Training Area Integrated Training Area Management/Conservation Coordinator,
Environmental, Public Works
Steve Drake, GIS Specialist (former), Environmental, Public Works
Jeff Durham, Salcha-Delta Soil and Water Conservation District
L.D. Fleshman, Fort Richardson Range Officer, Range Control, Directorate of Plans, Training,
Security, and Mobilization
Kevin Gardner, Environmental Planner, Strategic Planning, Public Works
Marcus Geist, GIS Specialist, Environmental, Public Works
Frank Hall, Range Planner, Directorate of Plans, Training, Security, and Mobilization
Andrea Hunter, NEPA Technician, Environmental, Public Works
Doug Johnson, Chief, Environmental, Public Works
Amy Kearns, Environmental Protection Specialist (Air Quality), Environmental, Public Works
Gary Larsen, Chief, Fort Wainwright/Donnelly Training Area Natural and Cultural Resources,
Environmental, Public Works
Scott Lehmkuhl, Fort Richardson Land Rehabilitation and Maintenance Coordinator, Environmental,
Public Works
Jeff Mason, Donnelly Training Area Land Condition Trend Analysis Coordinator, Environmental,
Public Works
Mark Prieksat, Environmental Protection Specialist (Hazardous Materials), Environmental, Public
Works
Bill Quirk, Environmental Scientist, Environmental, Public Works
Dan Reese, Environmental Forester, Public Works, Fort Wainwright
Russ Sackett, Cultural Resources Manager, Environmental, Public Works
Kathy Sonnichson, Salcha-Delta Soil and Water Conservation District
Catherine Stewart, Noise Specialist, U.S. Army Center for Health Promotion and Preventive Medicine,
Aberdeen, MD

6. LIST OF AGENCIES AND EXTERNAL PERSONS CONTACTED

Fire Risk Assessment

Tamala DeFries, Bureau of Land Management, AK

Chris Hays, Fuels Management Specialist, Alaska Fire Service, Southern Fire Management Zone

Mark Musitano, Fuels Management Specialist, Alaska Fire Service, Military Fire Management Zone

Cultural Resources Impacts

Judith E. Bittner, State Historic Preservation Officer, Anchorage, AK

Environmental Assessment Review

Alaska Department of Fish and Game, Fairbanks, AK

Bureau of Land Management, Fairbanks, AK

U.S. Army Corps of Engineers, Alaska District, Fairbanks, AK

U.S. Fish and Wildlife Service, Fairbanks, AK

Soil and Water Conservation Review

Jeff Durham, Programs Administrator, Salcha-Delta Soil and Water Conservation District, Delta Junction, AK

Kathy Sonnichsen, District Coordinator, Salcha-Delta Soil and Water Conservation District, Delta Junction, AK

7. REFERENCES

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8. ENVIRONMENTAL ASSESSMENT PREPARERS

This environmental assessment was prepared by Gene Stout and Associates, with support from Strategic Planning and Environmental divisions, Public Works, USARAK. Below are backgrounds of personnel within Gene Stout and Associates who either prepared or edited this assessment.

Jeffrey Blythe

Ph.D. Social Anthropology, University of Cambridge, England
M.Phil. Social Anthropology, University of Cambridge, England
B.A. Anthropology, Bard College, Annandale-on-Hudson, NY
Years of Experience: 9

Gene Stout

M.S. Zoology (Wildlife), Arizona State University
B.S. Zoology, Penn State University
Years of Experience: 32

Jeffrey Trousil

B.S. Wildlife, University of Wisconsin, Stevens Point
Years of Experience: 17

9. ACRONYMS

BAX	Battle Area Complex
BP	Before Present
CACTF	Combined Arms Collective Training Facility
CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CTR	Collective Training Range
db	decibel
F	Fahrenheit
mg/l	milligrams/liter
MOUT	Military Operations in Urban Terrain
NEPA	National Environmental Policy Act
USARAK	United States Army Alaska
USC	United States Code

APPENDIX A. Section 7, Endangered Species Act Exemption



United States Department of the Interior
Fish and Wildlife Service
Fairbanks Fish and Wildlife Office
101 12th Ave., Box 19, Room 110
Fairbanks, Alaska 99701
August 6, 2002



Colonel David Snodgrass
Director, Public Works
600 Richardson Drive #6000
Fort Richardson, Alaska 99505-6000

Re: Restructuring 172nd Infantry
Brigade's associated ranges, facilities
and infrastructure

Dear Colonel Snodgrass:

This responds to your request for a list of endangered and threatened species and critical habitats pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). This information is being provided for the proposed restructuring of the 172nd Infantry Brigade's associated ranges, facilities and infrastructure. The proposed locations for changes include Fort Wainwright, the Donnelly Training Area, and outlying areas such as Gerstle River and Black Rapids.

No listed species occur in these project areas and there is no designated or proposed critical habitat in the vicinity of the proposed projects. Therefore, the Service concludes that this project is not likely to adversely impact listed species. Preparation of a Biological Assessment or further consultation under section 7 of the Act regarding this project is not necessary.

This letter applies only to endangered and threatened species under our jurisdiction. It does not preclude the need to comply with other environmental legislation or regulations such as the Clean Water Act.

Thank you for your cooperation in meeting our joint responsibilities under the Act. If you need further assistance, please contact Jonathan Friday at (907) 456-0499.

Sincerely,

Ted Swem
Branch Chief
Endangered Species

APPENDIX B. Letter from Delta Fish and Game Advisory Committee

JUL-02-2002 TUE 01:13 PM CSU CEMML

FAX NO. 9704913197

P. 01

04,

DER

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Post-it* Fax Note	7671	Date	7/2/02	# of pages	1
To	Gary Larson	From	Roger Sayre		
Co./Dept.		Co.	CEMML		
Phone #		Phone #	970-491-3394		
Fax #		Fax #			

Box 468
Delta Junction Alaska 99737

Delta Fish & Game Advisory Committee

April 2, 2002

Directorate of Public Works
Attn: Doug Johnson

Dear Sir:

Thank you for the briefing on the proposed range complex to be built at Ft. Greely. Our committee again discussed the issue at our 24 March 2002 meeting. As we noted in our minutes that were sent for record, the Delta Junction Fish & Game Advisory Committee is opposed to developing a new range that would further impact fish & wildlife, reduce or eliminate hunting, fishing and wildlife viewing opportunity.

After further review of the proposed sites we believe that all of the sites listed will have serious and long lasting effects on wildlife and the environment. Specific concerns are as follows.

1. Elimination or disruption of bison calving and forage areas. Disrupting the herd will only exacerbate bison/farm owner conflicts. The bison situation is complex and if the herd is disrupted, planting new food plots may not resolve the problem. We would like to see this issue studied and remedied "before" the existing range is impacted.
2. The Macomb Caribou herd frequents the proposed sites and spends a good portion of the year in the areas. The Macomb Caribou herd is intensively managed to maintain the existing population. Disruption of the range could have dire consequences for this herd.
3. Moose heavily use all of the proposed sites especially in winter when it is assumed maneuver activity would be at it highest.
4. Further study of the Delta River should be initiated as the mouth of Delta River is one of the most important salmon spawning areas in the Tanana River drainage.
5. People who attended the February 28, 2002 open house were disappointed about the lack of information available. The committee to this date has not been informed of the types of weapons and amount of ordinance to be used.
6. We, at this time, do not support any of the proposed sites but encourage the use of existing ranges and facilities as already exist (Preliminary Alternative #2).

Sincerely,



Darrell Darland

Chairman Delta Junction Advisory Committee

APPENDIX C. Section 106, National Historic Preservation Act Consultation



DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY GARRISON, ALASKA
600 RICHARDSON DRIVE #5000
FORT RICHARDSON, ALASKA 99505-5000



06 AUG 2002

Reply To:
APVR-RPW-EV

Judith E. Bittner
State Historic Preservation Officer
550 W. 7th Avenue, Suite 1310
Anchorage, AK 99501-3565

No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 8-27-2002
File No.: 3130-1R ARMY 54

Re: North Jarvis Training Area
Fort Wainwright, Donnelly Training Area East

Dear Ms Bittner:

The United States Army has proposed a range development project within U.S. Army Alaska (USARAK) lands at Ft. Wainwright's Donnelly Training Area, to begin in 2002. The project involves the construction of a Combined Arms Collective Training Facility to be located in the vicinity of North Jarvis Training Area in Donnelly Training Area East. A section 106 (NHPA) review of the proposed training area was conducted in June and July 2002. No cultural resources were identified.

Application of Section 106 Criteria for Identification and Evaluation of Historic Properties [36 CFR 800.4(d)] indicates a finding of "No Historic Properties Affected" for the proposed range development project, based on the findings outlined below. U.S. Army Alaska (USARAK) requests your concurrence with this finding.

Undertaking

United States Army Alaska (USARAK) will construct a Combined Arms Collective Training Facility (CACTF) at Donnelly Training Area on Fort Wainwright, Alaska. The range will be sited in the Jarvis North Training Area approximately six kilometers southeast of Delta Junction, Alaska and five kilometers east of the Richardson Highway (Figure 1). The 24-structure CACTF is designed to bring USARAK urban combat training facilities up to current Army standards. The facility would include a Military Operations in Urban Terrain (MOUT) Range Support facility, control tower, ammo breakdown facility, electric service, Arctic latrines, site improvements, and data-information systems. The range would use non-dudding ammunition (e.g., blank small arms, wax bullets, other short-range training ammunition). The range would be laid out on a 1,500 x 1,500 meter configuration.

The CACTF has been sighted immediately east of Jarvis Creek between Eddy and Buffalo Drop Zones, just east of the Fort Greely cantonment. The range is scheduled for completion by April 2005.

Setting

Fort Wainwright is located in central Alaska (Figure 2.1a), north of the Alaska Range in the Tanana River Valley. The Post lies 120 miles south of the Arctic Circle near the cities of Fairbanks and North Pole in the Fairbanks North Star Borough. The installation consists of the Main Post, Tanana Flats Training Area, Yukon Training Area, Dyke Range, and Donnelly Training Area. This project is located within Donnelly Training Area, approximately 110 miles southeast of Fairbanks near Delta Junction, Alaska and six road miles south of the junction of the Alaska and Richardson highways. Donnelly Training Area consists of two large training areas, Donnelly West Training Area (approximately 531,000 acres) and Donnelly East Training Area (approximately 93,000 acres), and three outlying sites, Gerstle River Training Area (20,580 acres), Black Rapids Training Site (4,112 acres), and Whistler Creek Rock Climbing Area (542 acres) (Natural Resources Branch 2001).

Donnelly Training Area has the northern continental climate of the Alaskan interior, characterized by short, moderate summers; long, cold winters; and little precipitation or humidity. Average monthly temperatures in Fairbanks range from -11.5° Fahrenheit (F) in January to 61.5°F in July, with an average annual temperature of 26.3°F. The record low temperature is -66°F, and the record high is 98°F. Average annual precipitation is 10.4 inches, most of which falls as rain during summer and early fall. Average annual snowfall is 67 inches, with a record high of 168 inches during the winter of 1970-71 (Natural Resources Branch 2002).

Literature Review

Archeological research on Fort Wainwright's training lands has resulted in numerous technical reports (Bacon 1978; Bacon and Holmes 1979; Dixon et al. 1980; Frizzera 1973; Higgs et al. 1999; Holmes 1979; Potter et al. 2000; Rabich and Reger 1977; Staley 1993), scientific papers (Holmes and Anderson 1986; West 1967; 1975), and the identification of at least 155 archeological sites. Work on Fort Wainwright has been largely stratified sampling in nature, resulting at times in as little as 1% of the survey universe being inventoried. This work has largely focused on known sites and areas thought to be of very highest potential for containing archeological sites. Areas of less than ideal site potential have often been neglected and sites that may be eligible for nomination to the NRHP have been incompletely documented or left un-evaluated. Thus, while a large number of important sites have been identified on Fort Wainwright, a number of important gaps exist in the cultural resource inventory.

Despite its incomplete nature this rich archeological record represents all of the accepted prehistoric cultures of the Alaskan interior. Of particular significance is the role played by archeological resources located on Army lands in the definition of the Denali Complex of the American Paleoarctic Tradition (Anderson 1970; West 1967; 1981). Though not located on Army lands, two of the oldest well-dated sites in North America, Swan Point and Broken Mammoth, dated to between 11,500 and 12,000 bp, are located just to the north of Donnelly Training Area East in the vicinity of Shaw Creek (Holmes 1996, 1998; Holmes et al. 1996; Yesner et al. 1999). Sites reflecting the influence of what has been termed Northern Archaic (e.g. Anderson 1968; Workman 1978), dating to perhaps 6,000 to 2,000 bp, are also present on Fort Wainwright training lands, as are late prehistoric Athapaskan (e.g. Andrews 1975; 1987; Cook 1989; Mishler 1986; Sheppard et al. 1991; Shinkwin 1979; Yarborough 1978) and Euro-American archeological sites (Gamza 1995; Phillips 1984). The significance of these known sites on Army Withdrawal Lands is attested by the fact that despite that nearly 50 of these sites remain to be evaluated 27 individual sites and 2 archeological districts have been deemed eligible for inclusion on the National Register of Historic Places, a third archeological district remains to be evaluated. There are numerous known archeological sites within 10 kilometers of the APE, several can be seen on Figure 1 of this document. The closest known archeological sites to the project area are located to the southeast on hilltop locations along 33 Mile Loop Trail and to the west on the hilltops adjacent to the west side of Jarvis Creek. Unlike these areas, the APE for this project is void of any discernable hills, overlooks, or bodies of water – three characteristics that are important determinants for archeological site location at Fort Greely.

Section 106 (NHPA) Inventory

In July 2002, an archaeological survey crew, comprised of four archaeologists employed by Colorado State University, conducted a pedestrian survey of the proposed range construction area. The project's Area of Potential Effect (APE) encompassed an area of approximately 2 square kilometers. The survey area is larger than the proposed range construction footprint, in order to ensure coverage of areas that may incur secondary impacts during construction or use.

Parallel pedestrian transects spaced at 20m were walked in all areas that were not deemed too wet or too steep (>40°) to contain cultural material. Transect survey units were partitioned according to existing roads and trails where possible. When existing roads did not provide for practical unit boundaries, a one square kilometer work unit was defined.

Systematic sub-surface testing was not undertaken in this APE as it lacked any terrain deemed of moderate potential for containing archeological sites. This survey area is dominated by relatively flat expanses of black spruce forest that gently rise a few meters to the north in the APE (Figure 2). In the


vicinity of the APE Jarvis Creek is a shallow swift braided stream that carries a high load of glacial silt. From an archaeological perspective this is an ideal location for this facility.

Results/Summary

Survey and sub-surface testing failed to identify any cultural resources within the boundaries of the proposed project's area of potential effect.

If you require additional information, please contact William Hedman, USARAK Archaeologist, at 353-3002.

Sincerely,


David B. Snodgrass
Colonel, U.S. Army
Director, Public Works

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF PARKS AND OUTDOOR RECREATION
OFFICE OF HISTORY AND ARCHAEOLOGY

FRANK H. MURKOWSKI, GOVERNOR

550 W 7TH AVE, SUITE 1310
ANCHORAGE, ALASKA 99501-3565
PHONE: (907) 269-8721
FAX: (907) 269-8908

December 11, 2002

File No.: 3130-1R Army
3330-6 XMH-874
3330-6N XMH-873, 875, 876, 877

SUBJECT: Combined Training Complex & Battle Area Complex, Donnelly Training Area
Delta Junction, AK

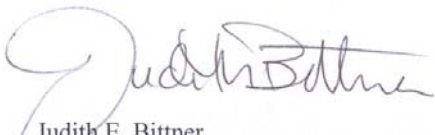
David B. Snodgrass
Director, Public Works
Department of the Army
600 Richardson Drive No. 5000
Fort Richardson, Alaska 99505-5000

Dear Mr. Snodgrass:

We have reviewed your correspondence (11/8/2002) regarding the referenced project for conflicts with cultural resources under Section 106 of the National Historic Preservation Act. We concur with your findings that XMH-874 is eligible for the National Register of Historic Places under Criterion D and that XMH-873, XMH-875, XMH-876 and XMH-877 are not eligible for the National Register. We also concur that no historic properties will be adversely affected by construction of the Battle Area Complex and that no historic properties will be affected by construction of the Combined Training Complex.

Please contact Stefanie Ludwig at 269-8720 if you have any questions or if we can be of further assistance.

Sincerely,



Judith E. Bittner
State Historic Preservation Officer

JEB:sl

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FINDING OF NO SIGNIFICANT IMPACT

Range Expansion Donnelly Training Area, Alaska

Description of Action. U.S. Army Alaska proposes to construct a Combined Arms Collective Training Facility, Battle Area Complex, and Collective Training Range at Donnelly Training Area, Alaska to provide training to meet Army standards. Projects would be sited in the Eddy Drop Zone Study Area and the North Texas Range Study Area. Design and construction would be completed by September 2005.

Anticipated Environmental Effects. Adverse impacts identified were disturbance of soils at facility and target sites and some changes in vegetation toward lower growing forms. There could be some effects to wetlands, but any such impacts would be within limits of Section 404 permits, which would be obtained. Required wetland mitigation would be implemented. Short-term noise, visual resources/aesthetics, and air quality degradation would occur during construction, but none would be significant or long-term, except for aesthetic impacts of facilities and targets associated with the ranges. There is a potential for the generation or discovery of hazardous waste or materials; such waste or materials would be disposed of or remediated according to compliance requirements. Potential negative impacts to air quality would be eliminated following construction with the exception of very minor increases in energy required (increased, but probably undetectable, air emissions at energy plant) to operate the ranges.

No significant adverse environmental impacts are anticipated for geology, soils, surface or ground water quality, biological resources (including federally-listed threatened or endangered plant or animal species), wetlands, floodplains, cultural resources, outdoor recreation, socioeconomics, environmental justice, and protection of children. This proposed action would provide a temporary positive impact on the local economy through the addition of major construction projects and a potential beneficial impact to moose and bison habitat. Potential impacts to sensitive species would be mitigated by avoiding significant damage to habitats through construction siting and avoidance of damage to animals or their breeding behavior through range usage modification. There are potential minor cumulative impacts associated with soil disturbance, regional air quality (very minor), and vegetation changes.

Conclusions. Based on a review of the information contained in this Environmental Assessment, it is concluded that construction of a Combined Arms Collective Training Facility, Battle Area Complex, and Collective Training Range at Donnelly Training Area is not a major federal action that would significantly affect the quality of the environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended. Accordingly, the preparation of an Environmental Impact Statement for this Proposed Action is not required.

DRAFT – Do Not Cite

Point of Contact. Requests for further information or submittal of public comments may be made for 30 days after first publication date to:

Chief, Environmental Resources
Public Works
Building 724
Fort Richardson, AK 99505-6505

Approved by:

Fredrick J. Lehman
Colonel, U.S. Army
Garrison Commander
U.S. Army Alaska

Date